



After Rehab: Returning to College after TBI

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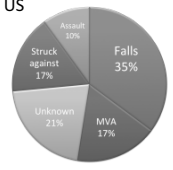
Disclosures

- **Financial:** I have a book chapter related to this topic for which I receive royalties.
 - Kennedy, M. R. T., & O'Brien, K. H. (2017) Coaching self-learning and self-management. In M. R. T. Kennedy (Ed.), Coaching post-secondary students with executive function deficits. New York: Guilford Press.
- **Non-financial:** I am a board member of the Brain Injury Association of Georgia and board member at large of Academy of Neurologic Communication Disorders and Sciences. My area of research is in return to learn after brain injury and concussion.

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Traumatic Brain Injury (TBI)

- "A TBI is caused by a bump, blow or jolt to the head or a penetrating head injury that disrupts the normal function of the brain." (CDC, 2015)
- >5 million living with disabilities from TBI in US
 - **2.2 million** new injuries annually
 - most mild
 - U.S. leading cause of disability < 34 years old
- \$60 billion
 - medical care and lost productivity



Cause	Percentage
Falls	35%
MVA	17%
Unknown	21%
Struck against	17%
Assault	10%

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Neuropathology of TBI

Yvisaker, Szekeres, & Feeney, 2001

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Cognitive Processes

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Self

Executive Functions

Metacognition

Memory and Learning

Perception

Attention

↑

Prefrontal

Frontal

Posterior

Stuss, 1991; Busch et al., 2005

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Broad Areas of Interest

Adults with traumatic brain injuries (TBIs)

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Cognitive Communication Deficits

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Cognitive Rehabilitation

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Returning to College after TBI

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College Students with TBI

Demographics	Challenges
<ul style="list-style-type: none"> • 56% of reporting institutions serve students with TBI • 91% at large colleges and universities (>10,000 students) • Most recent data is from 2008-2009 (NCES; Raue & Lewis, 2011) • 16.4% of undergraduates at BGSU (Krause & Richards, 2014) 	<ul style="list-style-type: none"> • Have lower GPAs • Take longer to graduate • More expensive education • Participate in fewer extracurricular activities (NLTCS-2; Wagner et al., 2005)

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How do we measure college success?

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College Survey for Students with Brain Injury

(CSS-BI; Kennedy & Krause, 2009; Kennedy, Krause, & O'Brien, 2014)

Academic Challenges

1. I have to review material more than I used to.
2. I forget what has been said in class.
3. I don't always understand instructions for assignments.
4. I get overwhelmed in class.
5. Others do not understand my problems.
6. I have fewer friends than before.
7. I procrastinate on things I need to do.
8. I have trouble paying attention in class or while studying.
9. I am late to class.
10. I have trouble prioritizing assignments & meeting deadlines.
11. I have trouble managing my time.
12. I get overwhelmed when studying.
13. I get nervous before tests.

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Self-Regulation

(revised from Kennedy & Coelho, 2005)

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Mechanisms of Changes to Awareness

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What do we know about SR?

- Self-Regulation is a depleting resource
 - Supported by >300 social science studies
- Domain Specific
 - Social skills
 - Memory
 - Problem solving
 - Physical skills
- Ongoing self-monitoring is affected by frontal lobe injury

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Increasing demands placed on all of us at work & school to...

- Solve problems
- Adapt to change
- Be organized
- Engage informal learning/training

Renders self-regulation a necessity for successful students & employees

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Are Self-Regulation and Awareness essentially the same?

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Self-Monitoring Predictions after TBI

- **Delayed Judgment of Learning Effect** (Nelson & Dunlosky, 1991)
 - Self-monitoring based on retrieval attempt is very accurate (called the 'delayed' judgment of learning effect)
 - Poorer recall predictions while information is still sitting in working memory
 - Also more likely to be based on metacognitive *beliefs*, not ongoing *monitoring*

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Self-Control Strategy Decisions after TBI

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Return to College Program
(O'Brien, Schellinger, & Kennedy, in review)

- Purpose** → To develop self-regulation and self-regulated learning
- Premise** → To improve self-regulation, you have to explicitly teach the self-regulation process ^{1,2,3}
- Tools** → Student-selected goals and self-regulated learning strategies

¹Ylvisaker & Feeney (1998); ²Ylvisaker (2005); ³Kennedy & Krause (2013)

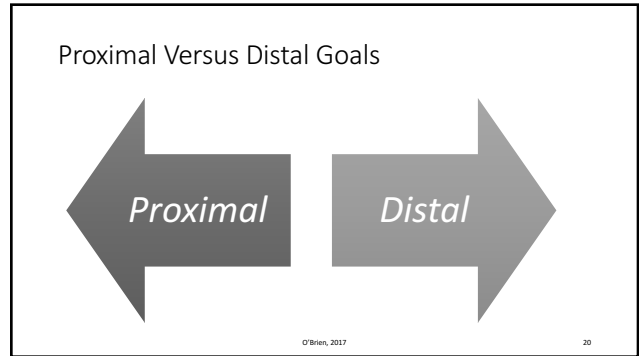
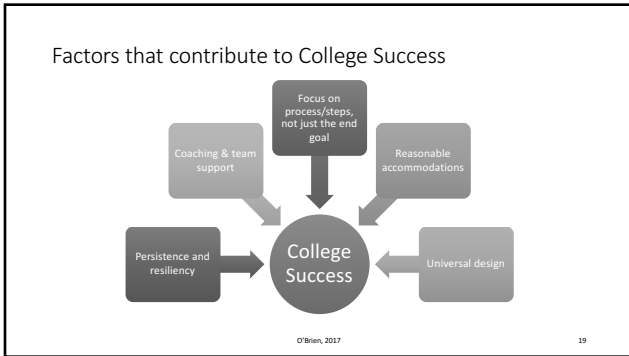
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The Dynamic Coaching Approach

Goal is for students to become experts in how they learn, manage time, and advocate

- Emphasize self-regulation
- SR is explicitly instructed with metacognitive strategies and procedures
- On campus, in real time, with constant feedback
- Coaches, not Teachers, SLPs

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- ### Research Questions: Proximal
- Following intervention, do students with TBI...
 1. • use a greater total **number** of strategies?
 2. • use a greater **variety** of strategies?
 3. • describe strategies used with **greater specificity**?
 4. • report a change in the degree of **academic challenges** they experience?
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- ### Research Questions: Distal
- Following intervention, do students with TBI...
 1. • maintain or improve **grades**?
 2. • Complete **credit hours** toward graduation?
 3. • **graduate** in a timely fashion?
 4. • secure **employment** in their fields?
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Methods: Participants

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- ### Methods: Intervention Program
- Return to College Program
 - Each student assigned one primary coach, with whom they met one-on-one over two semesters
 - Number of sessions ranged from 19-25
 - Average length of session ranged from 44 minutes to 88 minutes, depending on student needs
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Methods: Data Collection

- Academic challenges and strategies were measured using the Academic Challenges section of the CSS-BI¹

¹CSS-BI; Kennedy & Krause (2009); Kennedy, Krause, & Turkstra (2008); Kennedy, Krause, & O'Brien (2014)

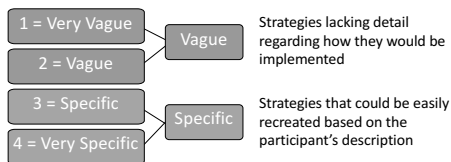
Methods: Strategy Coding

- Strategy types were coded using an adaptation of Zimmerman and Martinez-Pons's (1986) schema:



Methods: Strategy Coding

- Strategy specificity was coded using Kennedy and Krause's (2011) schema using a consensus process (99.7% agreement between the coders):



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Results

- Will an adapted version of the Zimmerman & Martinez-Pons coding schema describe a range of compensatory strategy behaviors reported by college students with TBI?

- 15 of 16 categories represented
- No single category contained a majority of items

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Proximal Results: Total # of Strategies

- 3 of 5 participants increased total # of strategies:

Total # of strategies reported

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Proximal Results: Variety of Strategies

- 4 of 5 participants increased variety of strategies:

Number of strategy types reported

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Proximal Results: Specificity of Strategies

- 4 of 5 participants increased specificity of strategies:

Percent of strategies rated as "specific"

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Proximal Results: Reported Academic Challenges

- 3 of 5 participants reported an increase in academic challenges after intervention:

Average rating on the CSS-BI

Note: Ratings on the 13 academic challenges were averaged, such that low scores indicate low endorsement of academic challenges.

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Distal Outcomes

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Summary of Findings: Proximal

- When averaged across participants, all outcomes demonstrated an increase following intervention.

Total #	• Increased for 3 of 5 participants
Variety	• Increased for 4 of 5 participants
Specificity	• Increased for 4 of 5 participants
Acad. Challenges	• Increased for 3 of 5 participants

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Summary of Findings: Distal

- When averaged across participants, all outcomes demonstrated an increase following intervention.

Grades	• Maintained or improved for 4 of 5
Credit Hours	• All continued to earn credits
Graduation	• Extended timeline for 4 of 5
Employment	• All employed or seeking graduate degrees

Implications

- Academic challenges ratings are meaningful, but difficult to interpret.

Limitations and Feasibility

Limitations of Study

- Adequate number of reported strategies, but low number of participants

Limitations of Our Protocol

- Familiarity effects
- Difficulty with follow-up
- Academic changes are both a strategy and an outcome; they also influence other outcomes

Current Work

- Coaching has been manualized for other researchers' and clinicians' use (Kennedy, 2017)
- Developing coaching program at UGA to support students with concussion and TBI

"What you do with what you have is more important than what you have..."
 Mark Ylvisaker
 1953 - 2009

Acknowledgements

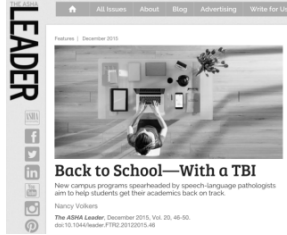
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Read More at...



<http://leader.pubs.asha.org/article.aspx?articleid=2474073>

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Contact



PEOPLE RESEARCH LINKS GET INVOLVED CONTACT



Welcome to the Cog-Com Rehab Lab at the University of Georgia

The Cognitive-Communication Rehabilitation Lab serves adults and adolescents with traumatic brain injury (TBI) or concussion. Our work examines functional rehabilitation to support people with brain injury returning to productivity at work and school.

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