BOSTON UNIVERSITY

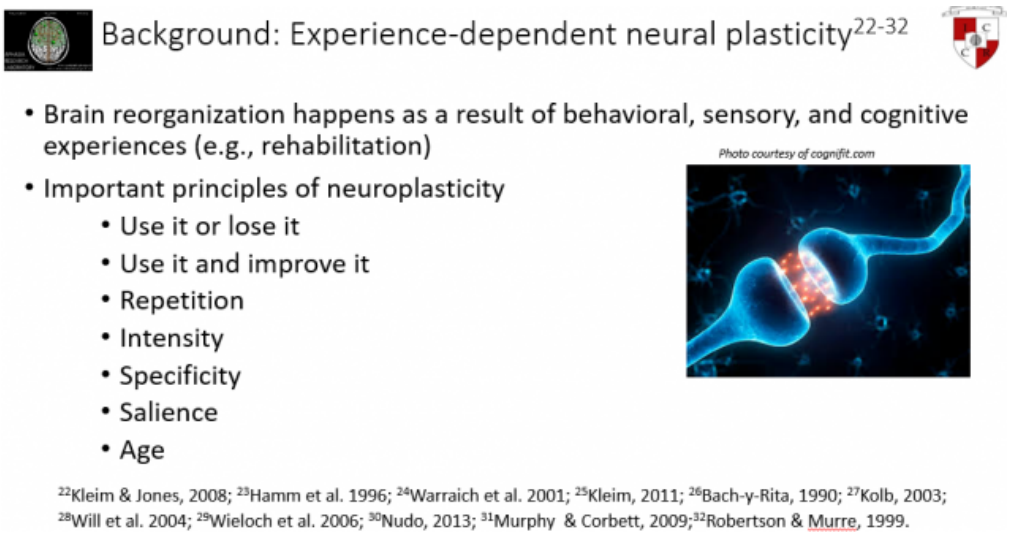
ICCR Therapy & Protocols

Evidence Base

ABI is a leading cause of disability in adults, with stroke and TBI among the most common causes of ABI. Young adults are one particular group that is notably affected by ABI, and the incidence rate of ABI in this age group continues to climb. In general, young adulthood is a time where many milestones are reached that are considered societal standards for independence and success. Higher education is prominent among these milestones and is associated with establishing a career. Unfortunately, a brain injury negatively impacts the cognitive and communication processes that are vital to success as a college student, such as memory, language, and attention. Therefore, this unique group of individuals often struggles to make this transition to higher education, limiting their ability to advance to a career and gain financial and living independence.

Cognitive Rehabilitation

The typical continuum of care for brain injury rehabilitation includes acute, inpatient, outpatient, and community settings. Cognitive Rehabilitation (CR) is the most common, and gold standard, method of intervention for cognitive impairment after ABI.



Using one single CR approach in isolation may not be beneficial to all individuals. Therefore, integrated CR that includes the most advantageous components of each CR type may be warranted for this population, which is why ICCR was developed.

Program Rationale

ICCR's program first takes a functional approach, allowing students to get much-needed practice implementing strategies that will be relevant in a university setting (classroom activities, exam preparation and performance, and essay writing, and to do so in a supportive, slower-paced environment. Simultaneously, ICCR utilizes impairment-based program, providing students with direct therapy for specific cognitive-linguistic goal areas. Both impairment-based and functionally based program approaches have been shown to improve communication skills after brain injury in an intensive environment; ICCR unifies these two, which promotes transfer of gains to real-life contexts – namely, academic environments.

Program Overview

ICCR's remote program program is delivered six hours per day and four days per week. There is a one-hour lunch break each day. Each day of program, participants receive an email with a schedule, document attachments, and videoconferencing links that they will need throughout the day. The program includes the following key components: 1) lecture-based courses (e.g., Biology, Psychology); 2) seminar-based courses (e.g., US History, Writing, Public Speaking, Personal Finance); 3) application- (e.g., Constant Therapy) and/or tech-focused therapy (e.g., online study groups, tech-based study resources, college research and applications); and 4) individual CR sessions (i.e., two, one-hour sessions weekly). One speech-language pathologist serves as the primary therapist in the classroom, while another speech-language pathologist is the primary therapist in individual CR sessions.

Group (Classroom-Based) program

The objective is to encourage group level metacognition and integration of executive function and memory strategies in a seminar-based and blended context, and to also facilitate reciprocal carryover between discussions and students' independent work.

Individual Therapy

Individual goals are established and targeted within 1:1 therapy sessions conducted twice weekly within the construct of ICCR.

Over the course of each semester, therapy targets 3-4 measurable short-term objectives per the primary discretion of the supervising speech-language pathologist, as well as 1-2 personally relevant quantifiable therapy outcomes generated by the client.

Functional, Application, Tech-Based Therapy

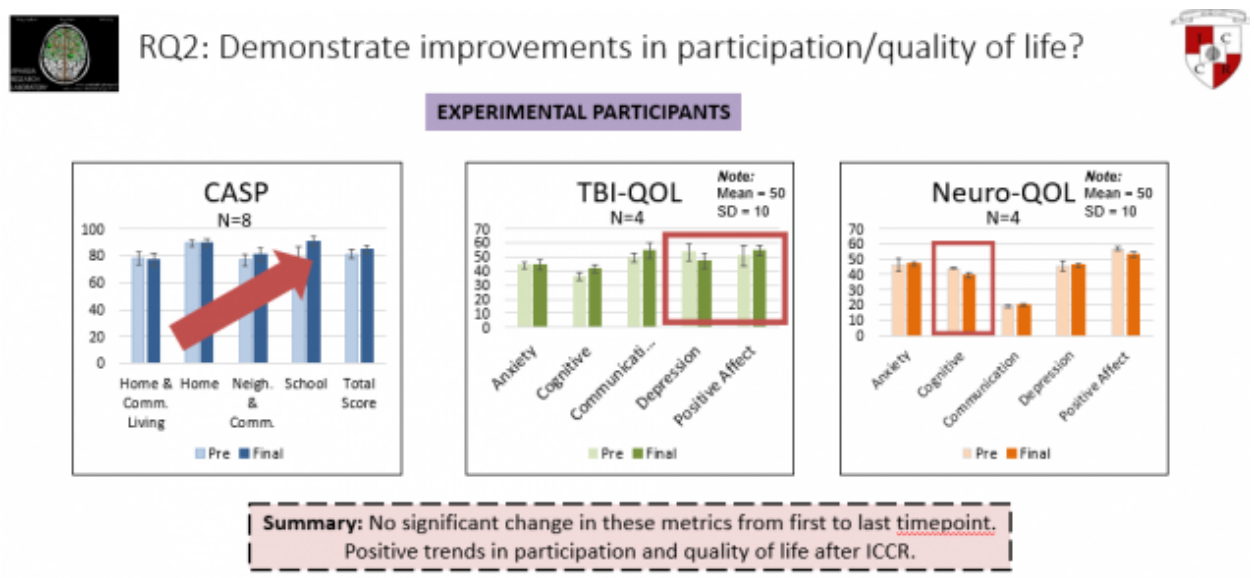
Participants are assigned to different “Tech Time Groups” on a rotating basis, which include: 1) application-based therapy (i.e., Constant Therapy), 2) college and career planning (e.g., college research, sending emails, completing essays, applications, etc.), and 3) assistive technology resources (e.g., practicing speech to text or text to speech, using web-based study portals, setting alarms or reminders, organizing an online calendar, etc.).

These types of activities give participants opportunities to complete self-guided tasks with minimal therapist supervision, serving the purpose of expanding on skills targeted in individual cognitive rehabilitation, which also then provides greater opportunity for individual program to directly target domains requiring a higher level of support or supervision. The therapist monitors performance live via videoconference and engages with participants on an as-needed basis dependent on their success with the task they are engaged in.

Outcomes

Participants in the ICCR program complete a battery of assessments before and after each 12-week semester.

Quantitative Data Analysis



Classroom Performance

Performance in the lecture-based courses is quantitatively measured via the administration of the same 36-question cumulative exam before and after each semester. Participants complete the exam independently using an online portal and are encouraged to utilize test-taking strategies throughout.

Individual Therapy Performance

Memory Probes are administered each therapy session. They range in complexity on a scale from one to twelve and cover the sub-domains of Immediate Memory, Working Memory, Short-Term Recall, and Delayed Recall.

The primary individual-therapy therapist also develops Pre- and Post-Semester Therapy Probes to match participants' individual program goals in both domain and complexity level (i.e., a structured scheduling exercise for a participant with goal targeting moderately complex problem-solving). These probes are administered within individual sessions at the following times during the semester: at baseline (i.e., first or second

week of program), at midterm (i.e., week six of program); and at final (week ten of program). Performance on the probes can be obtained by multiplying percent accuracy by complexity level.