

# CURRENT REPERTOIRE



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Introduction by  
Dr. Janet S. Twyman  
blast: A Learning  
Sciences Company &  
Cambridge Center for  
Behavioral Studies

# 16th Annual Conference on Autism: Research-Based Solutions

Corque Hotel, Solvang, California or Virtually

## Saturday, April 22, 2023

**A HYBRID EVENT**

An in-person gathering with virtual option.

### INVITED SPEAKER ABSTRACTS



#### **Caring Hearts at the Intersection of Autism and Culture**

**Shahla Alai-Rosales, PhD, BCBA-D, LBA, CPBA-AP**

Associate Professor, Department of Behavior Analysis, University of North Texas

What are the relations between science, ethics and progress in Applied Behavior Analysis? How does this relate to Autism? To explore this question, we look at the progression of intensive interventions in autism. This will include: an overview of the foundational and changing premises of our discipline; the emergence, impact and metamorphosis of early intervention configurations; the rapid expansion of services and service providers; and, the concerns voiced by people of color and autistic people. The proliferation of behavior analysis in autism services has brought both growth and growing pains. When facing the painful dimensions of growth, we can either choose to be complacent or humbly act

to progress as an applied science that cares deeply for the people we serve. Concepts complementary to our science can offer meaningful ways to strengthen our caring hearts to honor individual and the collective.



#### **Building the Skill Set of Collaboration: How to Build Bridges, Break Barriers, Enhance Outcomes, and Enact Teamwork**

**Mary Jane Weiss, PhD, BCBA-D, LABA**

Associate Dean of Applied Behavior Analysis; Director, PhD Program in Applied Behavior Analysis  
Professor, School of Education, Endicott College

Autism necessitates comprehensive care. To meet the complex needs of individuals with ASD, multiple professions must work collaboratively and in an interdisciplinary framework. Working alongside professionals from other disciplines involves addressing differences in worldview, in the definition of evidence, and in the concept of evidence-based practice. Opinions about assessment and intervention may be discrepant, and the gulfs in views can be difficult to close. The successful navigation of these challenges

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leads to more effective team processes and improved outcomes for clients. It also leads to mutually respectful interactions among professionals. Flexibility and interpersonal skills are needed, and clinicians need to appreciate the unique expertise offered by members of allied professions. Understanding differences of perspective and treatment requires openness to the process and recognition of the improved outcomes that stem from successfully integrated treatment. Resources that can assist in collaboration include position statements on interventions, evidence-based categorizations of treatments, and decision making tools and trees. This presentation will highlight the resources and skill development that can prepare behavior analysts for successful interprofessional collaboration. Advancing this goal can enhance outcomes for individuals served, can equip practitioners with essential skill sets, can assist organizations in achieving interdisciplinary care, and can enhance the reputation of the field.

## Stop the Patchwork: Inconsistencies in ABA Intervention for Autism

**Lorri Unumb, Esq**

Chief Executive Officer, The Council of Autism Providers (CASP)

Attorney Lorri Unumb will discuss the patchwork of autism services and funding streams that exists across the United States. Medicaid rates for ABA services vary dramatically from state to state; terms of coverage in state insurance laws vary; behavior analyst licensure laws are different in different states, or sometimes non-existent. Within the ABA context, significant variation exists from state to state on issues like where services can be delivered, through what age is funding available, and the extent to which caregiver participation is required. Significant variations in policy from payer to payer will also be discussed.



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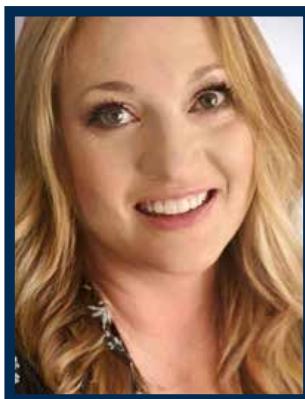
## Compassion & Ethics in Building an Autistic Supportive Institution

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### Noor Y. Syed, PhD, BCBA-D, LBA/LBS

Assistant Professor & Clinical Coordinator;  
Founding Director & Susan H. Turben Director of Autism Advocacy  
Center for Autism Advocacy: Research, Education, & Supports (CAARES)  
SUNY Empire State College and Director, Anderson Center International

The need for diversification within higher education institutions is paramount, and neurodiversity, including autism, is no exception. Most higher education institutions within the United States have traditionally served primarily neurotypical students, with approximately only 100 colleges and universities in the contiguous United States reporting specific supports for autistic students (McDermott et al., 2022). Of autistic students who do attend, only 40% complete their postsecondary education as compared to 60% of the general population (Accardo et al., 2019), indicating a critical importance for higher education staff and faculty to better meet the needs of these students. To increase inclusivity and accessibility of resources, the Center for Autism Advocacy, Research, Education, and Supports (CAARES), founded in 2020 with Empire State University, is implementing universal and tiered behavioral supports across its 80 campuses and robust online learning platforms through multi-tiered systems of support (MTSS) frameworks. While research has demonstrated that these frameworks, such as schoolwide positive behavior interventions and supports (SWPBIS), can be successful in improving behavioral and academic outcomes for primary and secondary school students, increased investigation in a higher education setting to support students with a variety of needs, including autistic students, is needed. Oversight and implementation of the MTSS initiative is collaborative, guided by advisory teams that include behavior analysts, autistic students, alumni, and advocates, caregivers in the autism community, and employees of the university. This presentation will describe actions taken to date in sustainable organizational development towards diversity, equity, and inclusion through the building of a neurodivergent inclusive university. We will share data collected on these initiatives, and describe next steps.



## Measuring Joy in Early Childhood ABA Sessions with the Joy Index

### Jennifer Posey, MA, BCBA

Director of Clinical Services, Holdsambeck Behavioral Health

As a field, the focus of applied behavior analysis is to improve the lives of the individuals we serve. But often, we find ourselves on the receiving end of criticisms that we utilize restrictive practices and/or fail to embed measures of assent into our day to day sessions. Conceptually this presentation links assent to rapport, choice, self-advocacy, and self-determination. An operational definition of how this is conceptualized as joy for young learners will be provided followed by the introduction of a 27 point dichotomous scale, which can be utilized by practitioners to measure assent, participation, choice, and autonomy. This tool is the Joy Index and has been designed to help practitioners become more in touch with their client experiences and reflect on how their own soft skills can be improved to enhance the joy of learners.



## Beyond the Box: Embedding Behavior Analysis in School Programs for Students with Complex Support Needs

### Robert C. Pennington, PhD, BCBA-D

Lake and Edward J Snyder, Jr., Distinguished Professor in Special Education  
University of North Carolina, Charlotte

Many educational professionals lack an understanding of applied behavior analysis (ABA) and its application in school settings. Still often viewed only as a model of intensive instruction or behavior support, school personnel may miss the opportunity to apply sound behavior analytic principles across a range of educational settings and activities. In this session, Dr. Pennington will describe several ways that behavior analytic instruction can be used to improve outcomes for students with complex support needs within inclusive contexts and new areas of academic instruction. He will present several innovations from educational research that can be implemented directly in the classroom.

# Schedule

## 16th Annual Conference on Autism: Research-Based Solutions

Saturday, April 22, 2023 - Corque Hotel, Solvang, California, or Virtually (Recordings available for 14-days for post-conference home-study.)



Shahla  
Alai-Rosales

### NOTE: Schedule is in PACIFIC (California) Timezone

7:30 - 8:30 am	Check-in for Badges/Late Onsite Registration
8:30 - 8:45 am	<b>Introduction by Janet S. Twyman, PhD, BCBA, LBA</b> Founder, blast: A Learning Sciences Company Cambridge Center for Behavioral Studies Board of Directors
8:45 - 9:45 am	<b>Shahla Alai-Rosales, PhD, BCBA-D, CPBA-AP</b> Associate Professor Department of Behavior Analysis, University of North Texas <b>“Caring Hearts at the Intersection of Autism and Culture”</b> Qualifies for 1.0 BACB® ETHICS Learning CEU
9:45 - 10:00 am	Break
10:00 - 11:00 am	<b>Mary Jane Weiss, PhD, BCBA-D, LBA</b> Dean of the Institute for Applied Behavioral Science Director, PhD Program in Applied Behavior Analysis Endicott College <b>“Building the Skill Set of Collaboration: How to Build Bridges, Break Barriers, Enhance Outcomes, and Enact Teamwork”</b>
11:00 - 11:15 am	Break
11:15 am -	<b>Lorri Unumb, Esq.</b>
12:15 pm	Chief Executive Officer, The Council of Autism Providers (CASP) <b>“Stop the Patchwork: Inconsistencies in ABA Intervention for Autism”</b>
12:15 - 1:15 pm	<b>Lunch Break ~ Thank You to Sponsor CoastHills Credit Union</b>
1:15 - 2:15 pm	<b>Noor Y. Syed, PhD, BCBA-D, LBA/LBS</b> Assistant Professor & Program Coordinator of Applied Behavior Analysis Turben Director of Autism Advocacy: Center for Autism Advocacy: Research, Education, & Supports (CAARES) Empire State University Director, Anderson Center International <b>“Compassion and Ethics in Building an Autistic Supportive Institution”</b> Qualifies for 1.0 BACB® ETHICS Learning CEU
2:15 - 2:30 pm	Break
2:30 - 3:30 pm	<b>Jennifer Posey, MA, BCBA</b> Director of Clinical Services, Holdsambeck Behavioral Health <b>“Measuring Joy in Early Childhood ABA Sessions with the Joy Index”</b>
3:30 - 3:45 pm	Break
3:45 - 4:45 pm	<b>Robert C. Pennington, PhD, BCBA-D</b> Lake and Edward J Snyder, Jr., Distinguished Professor in Special Education University of North Carolina, Charlotte <b>“Beyond the Box: Embedding Behavior Analysis in School Programs for Students with Complex Support Needs”</b>



Janet Twyman

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Lorri Unumb



Noor Syed



Jennifer  
Posey



Robert  
Pennington

**For BOTH In-Person and Virtual attendance, we need to verify your attendance if you are earning continuing education.** Three (3) codes will be given during EACH presentation. You will need to complete an online evaluation and pass a code submission quiz (100%) to earn your continuing education certificate. Instructions will be given during introduction AND emailed to you at the end of the day.



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## Magnetic Stimulation: The Latest Fad Magnet for Autism Spectrum Disorder

by Kathryn Gorycki, MA, & Thomas Zane, PhD, BCBA-D

University of Kansas

Department of Applied Behavioral Science

Recently, the NeuroHealth Center (<https://neurohealthcenters.org/>) opened a treatment center that uses magnetic stimulation to treat autistic patients in New Jersey. The NeuroHealth Center was inspired by parents of their child, Frankie, diagnosed with autism spectrum disorder (ASD). The parents claimed that after 20 treatments of magnetic stimulation, Frankie emerged as a “new” child and thus, the parents decided to devote their lives to helping families facing the challenges of Autism by partnering with the founder of PeakLogic (n.d.) and creator of Personalized Repetitive Transcranial Magnetic Stimulation (PrTMS).

Barmakian (2022) described PrTMS as a pain-free, drug-free, noninvasive procedure that can change the life of children and adults with ASD. The PrTMS procedure delivers personalized, repetitive magnetic pulses to targeted brain areas. During each treatment session, an electromagnetic coil is placed near the patient’s scalp at targeted locations, supposedly stimulating specific brain neurons, resulting in improved executive functioning (Barmakian, 2022). According to Neurohealth Center, continued treatment is recommended if

patients respond positively within the first two weeks. Responding positively was determined from an EEG that is “taken every five days to determine progress and the treatment’s path forward.” However, if the patient is not responding in the first two weeks, the recommendation is to discontinue treatment.

Barmakian (2022) stated that the center was inspired by Frank and Mary Plut, who witnessed the impact PrTMS had on their young son, Frankie, and are passionate about helping other families affected by ASD. The article uses this “miracle story” to state that Frankie was nonverbal 30 days before the treatment and is now speaking. Also, instead of walking on his toes, Frankie began walking with his feet flat on the ground. Even further, the center makes claims that it may change patients’ lives by reducing destructive behaviors, promoting social interactions and eye contact, fostering adaptability to smoothly transition from one activity to another, decreasing anxiety and enhancing stress coping mechanisms, improving overall mood, and reducing depression, promoting sleep, advancing memory and mental clarity, and increasing



Kathryn Gorycki & Thomas Zane

attention span and ability to focus. Additionally, Barmakian stated that PrTMS is FDA approved to treat Major Depressive Disorder and may be used Off Label (not covered by insurance) to treat a variety of disorders (e.g., autism, anxiety disorder, traumatic brain injury, post-traumatic stress disorder, attention deficit hyperactive disorder, stroke, dementia, Parkinson’s, obsessive-compulsive disorder, and other neurological disorders). There is no information on the NeuroHealth Center’s website regarding other success stories or success rates.

Although the Frankie story is quite inspiring, it is important to turn to the scientific research to examine the potential benefit/harm of PrTMS, and whether these extraordinary claims in the article by Barmakian are true. Searching for research studies focusing on the use of PrTMS with autism, one finds a shocking lack of research. Oberman and colleagues (2015) critically reviewed the current scientific evidence for using this

[Continued on p. 14](#)

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# Attend Our 2023 Annual Meeting of the Trustees

## Join Us in Denver, Colorado OR Virtually

### Friday Afternoon - May 26



#### What to Expect:

Our in-person attendees will be meeting at the **Embassy Suites Denver Downtown Convention Center**. We plan on an 1:00 pm start with adjournment at between 4:00 & 4:30 pm (*Mountain Time Zone*). Our virtual attendees will join us through Zoom. A social gathering for both in-person and virtual attendees will follow. In-person attendees will enjoy light fare after the business meeting.

#### Brief Schedule:

Dr. Hank Pennypacker, Chair of our Board of Directors, will call to order at 1:00 pm (**Mountain Time**) with Trustees voting for acceptance of the 2022 minutes and for nominated incoming Trustees and Advisors. The financials and past, present, and future projects will be reviewed by Dr. Rob Holdsambeck, Executive Director, with updates from our volunteers who have championed these projects. Presentations will be made both in-person and streaming in virtually. The meeting is to adjourn between 4:00-4:30 pm (*Mountain Time*) with the informal social gathering immediately following. Fun activities are planned ~ get to know each other more!

**Please officially register.** This helps with expenses. Your registration will serve as your formal RSVP.

We have a small roomblock at the Embassy Suites ([contact Rebekah](#)) and suggest [The Curtis](#) as an overflow option if you need a room.

**We look forward to your participation as a Trustee, Advisor, Distinguished Scholar or Friend of the Center.**



**REGISTER TO ATTEND**

#### Tentative Schedule

<b>12:30 - 1</b>	Check In - Beverages Available
<b>1:15</b>	Hank Pennypacker Call-to-Order, Quorum & Voting
<b>1:15 - 2:15</b>	Rob Holdsambeck's Annual State of the Union Address
<b>2:15</b>	Break
<b>2:30 - 4:30</b>	Trustee Updates
<b>4:30 - 6:00</b>	Social Gathering & Fun Game ( <i>Light Fare &amp; Cash Bar</i> )

**20 Questions**  
A game to learn more about our leaders at CCBS

# GREATEST GENERATION



Photo by sue hughes on Unsplash

## The Greatest Generation of Behavior Analysts

by Andy Lattal, PhD\*

Journalist Tom Brokaw labeled them The Greatest Generation. Both my father and my father-in-law were of that generation of Americans caught up in the horrors of the Second

World War. Along with them, and millions of others, were people who later contributed significantly to behavior analysis. Three such people – there were many others - who served in America's armed forces were Jack Michael, Joseph Brady, and Ogden Lindsley. The story of Norman Guttman, who served in the U. S. Army Signal Corps during that time, was told in an earlier piece about the history of the snap lead ("The connection between your PJs and the history of behavior analysis," [Current Repertoire, April/May, 2021](#)). Guttman brought these versatile connectors to Skinner's lab

as a result of his (Guttman's) experience with military communications systems.

**Jack Michael** (1926-2020) was one of the most respected teachers of behavior analysis, not to mention his lofty status of being singled out by Skinner as the one person who really understood his (Skinner's) analysis of verbal behavior. Jack's teaching was recognized by the American Psychological Association in 1971, with its prestigious Distinguished Teaching Award. Many other such awards for both teaching and service followed, including ABAs award for Distinguished Service to Behavior Analysis (2002). Jack was drafted into the U. S. Army in June, 1944, after having spent the previous 9 months as a freshman at UCLA.



Jack Michael circa 1944



Jack Michael circa 1944-1946

From February to June 1945, Jack served as an ammunition bearer in the 97th Infantry Division. A latecomer to the European Theater of Operations, in April 1945, the division participated in the final push in Germany to victory on May 8, 1945. Following the end of the war in Europe, the division was deployed next to Cebu, Philippine Islands, where they set sail for Japan in September, 1945 as part of the US Army of Occupation of Japan. By now Private-First Class Michael was invited to re-up and was offered training as a parachutist, which he wisely declined. He returned from the war to complete his B.A., M. A. and Ph.D., all while living at home and going to school, like most WWI veterans, under the auspices of the GI Bill. The rest is behavioral history.

**Joseph V. Brady** (1922- 2011) was an ROTC (Reserve Officer Training Corps) graduate of Fordham University who served as an officer – a combat infantry platoon leader – during 1944 and 1945 in Germany. In the period immediately following VE day, he was assigned to be the Chief Clinical Psychologist at a military hospital in Wiesbaden, Germany, designated as the Neuropsychiatric Center of the European Command, despite no training in the psychiatric field. He rose to the occasion and then returned to the University of Chicago for his Ph.D. degree under a former Skinner student, Howard Hunt. Brady continued in the military and retired



Joe Brady at Fordham,  
circa 1942-44

as a Colonel in 1970. His career both during and following his military service is one of the most storied in behavior analysis. He founded what is now the Institute for Behavioral Resources in Baltimore, was at the time of his death the longest holder of continuous grant support from NASA (his space work began when he was in the army - soon after Sputnik was launched by the USSR in the late 1950s), one of the founders of behavioral pharmacology, a pioneer in the study of environmental variables and stress, an administrator extraordinaire, and at least Jack Michael's and Og Lindsley's equal in terms of enthusiasm for and commitment to behavior analysis.



Joe Brady at Fordham,  
circa 1942-44

Last, but certainly not least, is T Sgt **Ogden Lindsley** (1922-2004), formerly of the 15th AF 98th Bombardment Group of the U. S. Army Air Corps, which he joined in January 1942. Serving as its Flight Engineer, Og's plane was shot from the sky by enemy anti-aircraft fire over Albania on August 11, 1944, his birthday. Og and his fellow crew members survived the crash but were captured by partisans and traded to Croatians, who, in turn, surrendered them to the Nazis in Yugoslavia. They were taken through Yugoslavia to Budapest and then to Stalag Luft IV in Gross Tychow, Pomerania (East-Germany-Poland area) . Never one to sit around twiddling his thumbs, Og subsequently escaped from a POW camp at Fallingbostel, Germany and made his way across Allied lines. He eventually was returned to the U.S. For his valor he was awarded the Air Medal and, for the wounds he incurred during the ordeal, the Purple Heart Medal. Og returned to Harvard after his discharge from service and completed his Ph.D. under Skinner. He then went on to establish the first human operant lab at Metropolitan State Hospital in Waltham MA and from there to a distinguished career in both applied behavior analysis and, especially, behavioral education.

Other prominent behavior analysts contributed their skills to the war effort in the military and in ways other than military service. One of the many sources of Skinner's fame was his Project Pelican, designed to train pigeons to guide bombs onto military targets. Fred Keller's involvement in teaching military personnel Morse Code during the war is described in many places, including his autobiography (Keller et al., 2009).

Like the others who served, these three future behavior analysts had their lives and careers ahead of them at the time of their service. Before those careers could take them to leadership in behavior analysis, they were called on to serve their country. And they did. Such were the times, and probably why Brokaw labeled them as he did.

\*I am indebted to Alyce M. Dickinson and Kathleen T. Brady for providing the photos of and information about the wartime lives of, respectively, Jack Michael and Joe Brady.

## Reference

Keller, F. S. (2009). *[At my own pace: The autobiography of Fred S. Keller](#)*. Edited by J. S. Bailey, M. Burch, A. C. Catania, & J. Michael. Sloane Press.



Ogden Lindsley circa 1943



# Tech, Tools, & Tips

Curated by Trustee and Board of Director Dr. Janet Twyman

In this recurring column, Janet will describe some of her favorite free or low cost technology, tools, and tips that may be of interest to the CCBS community.

## Will Software Replace Us?

My answer? Nope. And not for a long while, likely never. But with the pace of significant progress in the realm of AI tools we are beginning to see myriad signs that our work and lives will change significantly. Specifically (for this column) from the impact of generative AI Chatbots. Originally I was going to write about Chat-GPT (by OpenAI) and its cronies\*, but since starting this column and actually finishing it, several other next-generation large language models have been released. By publication time there may be many newer, better, "smarter," models with which humans may interact and converse.

What are AI Chatbots some of you may ask? A chatbot is a software program that uses artificial intelligence (AI) and natural language processing (NLP) to understand questions posed to it and generate responses, simulating human conversation. Now we're already in a "nesting doll" or tech terms. What's AI? What is NLP? ML? NN? Since we're not going to devote this entire column to tech terms, acronyms, and their definitions, I'll instead recommend "[50 AI terms every beginner should know](#)" as a decent starter resource. However I will explain three terms most relevant to this column (you're free to skip the next paragraph if you'd like):

**Machine Learning** (ML) uses algorithms that help them automatically learn and improve from experience, without being explicitly programmed. In other words, without direct training. It's the without being directly taught that's getting everyone excited. **Deep Learning** imitates one way humans learn -- by example. Using Reinforcement Learning (yes, Rf, [more here](#)) deep learning models are taught to recognize complex patterns in text, images, and other data to identify similarities (or differences) and make predictions. It's what powers **Natural Language Processing**, or a machine/software's ability to perform conversational tasks, such as recognizing what is said to it and responding novelly (usually) and reasonably (usually). Natural language processing tools "understand" a user's query and provide direct, coherent, personalized responses. This is different from search engines that use an algorithm to return a list of web links that likely relate to the key words used in the search.

Why do we care about AI chatbots? Some of us might not, but all of us should know that NLP models are being used all around us, in virtual assistants such as Alexa, Siri, and Google Assistant, grammar correction tools, and increasingly, to write the articles we read. They can answer questions, summarize text, translate conversations, suggest itineraries, or write a story, poem, song lyrics, code, or task analysis (Figure 1, courtesy of Trustee Dr. T.V. Joe Layng). The list is seemingly endless. For example, see Chat-GPT's attempt at explaining negative reinforcement (a tricky concept for many new to behavior analysis), providing real-life examples, and elaborating on the topic, all at an undergraduate level (Figures 2, 3, and 4).

Figure 1

The screenshot shows a task analysis for toothbrushing. At the top, there is a blue button with the text 'write a task analysis for toothbrushing'. Below this, the title 'Toothbrushing' is displayed in red. A definition of task analysis is provided: 'Task analysis is a method used to break down a complex task into smaller, more manageable parts. It is often used in education, training, and ergonomics to help people learn new skills or improve their performance.' Below the definition, there is a section titled 'Here is a possible task analysis for toothbrushing:' followed by a numbered list of 10 steps. At the bottom, a note states: 'This task analysis can be modified to fit the specific needs and abilities of the individual using it. For example, a child may need assistance with step 3 (dispensing the toothpaste) or a person with mobility issues may need to use a toothbrush with a longer handle (step 1).'

1. Gather materials: toothbrush, toothpaste, cup for rinsing (optional)
2. Wet the toothbrush
3. Dispense a pea-sized amount of toothpaste onto the toothbrush
4. Place the toothbrush in the mouth and position it at a 45-degree angle against the gum line
5. Brush the fronts, backs, and tops of the teeth using a circular motion
6. Spit out the toothpaste and rinse the mouth and toothbrush
7. Brush the tongue to remove bacteria and freshen breath
8. Rinse the mouth and spit out the remaining toothpaste
9. Rinse the toothbrush and place it in a clean, dry location
10. Rinse the cup (if used) and place it in a clean, dry location.

The technology is pretty cool. But let's not forget that these models are trained on copious amounts of text (i.e., billions of articles, books; that's why they are called **Large Language Models**~LLM). Their "output" can only be as good as their "input," (i.e., garbage in, garbage out) so even in the best of circumstances misinformation, hallucinations, and other errors can and do occur (the internet is ripe with examples not to be repeated here). Since these systems are taught via natural language, the unavoidable biases of human communication are bound to occur. Additionally, judging by what's produced, it seems most LLMs were served a diet of uninspired prose, formulaic writing, convoluted text, and oversimplifications. As Trustee Kent Johnson said (personal communication), "Those cognitos think that they can improve it by simply adding more and more content. Nonsense."

No matter how clever or creative some think much of the LLM/NLP applications are, in reality much of the output so far seems to be a form of advanced automation. They can generate some

Figure 2



Sure thing! Here are four different and varied examples of negative reinforcement that you can use to help your undergraduate students better understand the concept:

1. Imagine a student who is experiencing anxiety about taking an exam. They start to study and find that the more they study, the less anxious they feel. In this case, the negative feeling of anxiety is being reinforced by the removal of the aversive stimulus (studying) through negative reinforcement.
2. A child throws a tantrum in the grocery store because they want a candy bar. Their parent gives in and buys them the candy bar to stop the tantrum. In this case, the child's negative behavior (tantrum) is being reinforced by the removal of the aversive stimulus (parental resistance) through negative reinforcement.
3. A person is bothered by a persistent ringing in their ear. They discover that wearing noise-cancelling headphones helps to reduce the ringing. In this case, the negative sensation of the ringing in their ear is being reinforced by the removal of the aversive stimulus (the noise) through negative reinforcement.
4. A person who experiences chronic pain starts taking pain medication prescribed by their doctor. When they take the medication, they experience a reduction in their pain. In this case, the negative sensation of pain is being reinforced by the removal of the aversive stimulus (the pain itself) through negative reinforcement.

Figure 4



Thank you again. Are there any positive reinforcement contingencies occurring in any of your examples? If so, could you specify them?



You're welcome! While the examples I provided focused on negative reinforcement, there are indeed some instances where positive reinforcement is also at play. Here are the examples where positive reinforcement occurs:

1. In the example of a student studying to reduce anxiety about taking an exam, there may also be positive reinforcement occurring if the act of studying produces a sense of accomplishment or mastery. If the student feels a sense of satisfaction or pride when they have studied for a certain amount of time or mastered a difficult concept, this positive feeling could reinforce the behavior of studying.
2. In the example of a child throwing a tantrum to get a candy bar, there is also positive reinforcement occurring when the child receives the candy bar. The child may feel happy or excited to receive the candy bar, and this positive feeling could reinforce the behavior of throwing a tantrum in the future to get what they want.
3. In the example of a person wearing noise-cancelling headphones to reduce ringing in their ear, there may also be positive reinforcement occurring if the headphones produce pleasant sounds or music that the person enjoys listening to. The person may feel happy or relaxed when they listen to their favorite music, and this positive feeling could reinforce the behavior of wearing the noise-cancelling headphones.
4. In the example of a person taking pain medication to reduce chronic pain, there may also be positive reinforcement occurring if the medication produces a sense of relief or comfort. The person may feel happy or grateful when their pain is reduced, and this positive feeling could reinforce the behavior of taking the pain medication.

Google's Bard is still in [waitlist](#) status. Other tools are proliferating and being integrated into other software programs (e.g., Duolingo, Khan Academy, Stripe).

Give one (or better yet, several) a whirl. Mollick (2023) offers a great guide on [how to use ChatGPT to boost your writing](#). Know that often the results are both not only as good (or as bad) as the information it's based on, but also as useful (or not) as the prompt used to ask it something (the internet is full of good guides depending upon your area of interest). If interested, [share your thoughts](#). And reader beware, we'll come back to these tools in future columns; perhaps I'll even get one of these tools to write it for me.

## Reference

Layng, T.V.J. (2018) [Tutorial: Understanding Concepts: Implications for Behavior Analysts and Educators](#). *Perspectives in Behavior Science*, 42(2):345-363. doi: 10.1007/s40614-018-00188-6. PMID: 31976438; PMCID: PMC6701481.

Tiemann, P.W., Markle, S. M. (1990). *Analyzing instructional content: A guide to instruction and evaluation*. Seattle, WA: Morningside Press. [\[Google Scholar\]](#)

Figure 3



Thank you. Could you specify the 3-term contingency (antecedent-behavior-consequence) in each of your examples?



Certainly! Here are the 3-term contingencies (antecedent-behavior-consequence) for each of the examples I provided:

1. Antecedent: Student experiences anxiety about taking an exam. Behavior: Student starts to study. Consequence: The negative feeling of anxiety is removed, reinforcing the behavior of studying.
2. Antecedent: Child wants a candy bar. Behavior: Child throws a tantrum. Consequence: The aversive stimulus of parental resistance is removed, reinforcing the behavior of throwing a tantrum.
3. Antecedent: Person experiences persistent ringing in their ear. Behavior: Person wears noise-cancelling headphones. Consequence: The aversive stimulus of the noise is removed, reinforcing the behavior of wearing noise-cancelling headphones.
4. Antecedent: Person experiences chronic pain. Behavior: Person takes pain medication. Consequence: The aversive stimulus of pain is removed, reinforcing the behavior of taking pain medication.

very well written and convincing "language," yet anything we would tact as critical thinking is absent. [I read somewhere that GPT has the memory of a goldfish ~ that is, when you provide new information then end a current conversation, any new conversation won't "remember" what was just said.] To fully advance and "think like humans" training on modern learning theory is required. For example, when I asked Microsoft's *Bing* for the critical and variable attributes of a chair ala Tiemann and Markle (1990; a go-to example in behavioral instructional design) all it could offer was the importance of an adjustable height, seat depth, or cushioning--nothing about what makes a chair a chair (see Layng, 2018). Frankly, it's not surprising. Critical thinking (so far) is something humans must learn, as individuals and as a society.

Yet....even in this early form, AI's LLM technologies have shown enormous potential. Regardless of what you currently think of them or what you currently do, it is prudent to have some experience of what they do and are about (it's way beyond being a search engine). And how does one access these AI tools? At the time of writing this [Chat GPT](#) has both a free plan (which can be prone to user overload if you're querying it at busy times of the day, or night) or a paid priority access version. Using Bing requires a free download of the Microsoft Edge browser. For many users

[Find more resources next page](#)

# Tech, Tools, and Tips Bonus Page ~ Resources, Resources, Resources

I realize I might have left a few readers hanging in my very brief overview of AI Natural Language Processing programs (e.g., ChatGPT, Bing, Bard), so this page offers a few resources that I've found useful; perhaps you will as well.

## How to start using ChatGPT

<https://www.zdnet.com/video/how-to-start-using-chatgpt/>

## How to use AI to do practical stuff: A new guide

<https://oneusefulthing.substack.com/p/how-to-use-ai-to-do-practical-stuff>

## The ChatGPT Cheat Sheet

[https://www.kdnuggets.com/2023/01/chatgpt-cheat-sheet.html?utm\\_source=pocket\\_reader](https://www.kdnuggets.com/2023/01/chatgpt-cheat-sheet.html?utm_source=pocket_reader)



## Leveraging ChatGPT: Practical Ideas for Educators

<https://www.ascd.org/blogs/leveraging-chatgpt-practical-ideas-for-educators>

## Best Ways to Use CHAT GPT in ABA

<https://www.youtube.com/watch?v=34gMxTkYVx0>



# How to use ChatGPT to summarize a book, article, or research paper

<https://www.zdnet.com/article/how-to-use-chatgpt-to-summarize-a-book-article-or-research-paper/>



## How to make ChatGPT provide sources and citations

<https://www.zdnet.com/article/how-to-make-chatgpt-provide-sources-and-citations/>

### ChatGPT Cheat Sheet

By @hasantoxr

**Define ChatGPT Role**

- Act as a Linux Terminal
- Act as "position" Interviewer
- Act as a JavaScript Console
- Act as an Excel Sheet
- Act as an English Teacher
- Act as a Plagiarism Checker
- Act as an Advertiser
- Act as a Relationship Coach
- Act as a Recruiter

**Learn from ChatGPT**

- Explain clearly
- Explain uniquely
- Explain detailed
- Explain like I'm 5
- Explain with examples
- Explain to 5th grades
- Explain like Elon Musk
- Explain detailed with examples
- Explain to high school students

### Chained Prompting

- Write an article about ChatGPT.
- First give me the outline, which consists of a headline, a teaser, and several subheadings.

[Output]

- Now write 5 different subheadings.

[Output]

- Add 5 keywords for each subheading.

[Output]

### Prompts for Marketers

- Can you provide me with some ideas
- for blog posts about [topic].
- Write a product description for my [product or service or company]
- Suggest inexpensive ways I can promote my [company] without using social media.
- How can I obtain high-quality backlinks to raise the SEO of [website name]

### Prompts for Designers

- Generate examples of UI design requirements for a [mobile app].
- How can I design a [law firm website] in a way that conveys [trust and authority].
- What are some micro-interactions to consider when designing fintech app.
- Create a text-based excel sheet to input your copy suggestions. Assume you have 3 members in your UX writing team

### Prompts for Developers

- Develop an architecture and code for a [description] website with JavaScript.
- Help me find mistakes in the following code [paste code below].
- I want to implement a sticky header on my website. Can you provide an example using CSS and JavaScript?
- Please continue writing this code for JavaScript [post code below]

Credit: hasantoxr "Chat GPT Insights"



Review

### ChatGPT Utility in Healthcare Education, Research, and Practice: Systematic Review on the Promising Perspectives and Valid Concerns

Malik Sallam

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<sup>2</sup> Department of Clinical Laboratories and Forensic Medicine, Jordan University Hospital, Amman 11842, Jordan

**Abstract:** ChatGPT is an artificial intelligence (AI)-based conversational large language model (LLM). The potential applications of LLMs in health care education, research, and practice could be promising if the associated valid concerns are proactively examined and addressed. The current systematic review aimed to investigate the utility of ChatGPT in health care education, research, and practice and to highlight its potential limitations. Using the PRIMSA guidelines, a systematic search was conducted to retrieve English records in PubMed/MEDLINE and Google Scholar (published research or preprints) that examined ChatGPT in the context of health care education, research, or practice. A total of 60 records were eligible for inclusion. Benefits of ChatGPT were cited in 51 (85.0%) records and included: (1) improved scientific writing and enhancing research equity and versatility; (2) utility in health care research (efficient analysis of datasets, code generation, literature reviews, saving time to focus on experimental design, and drug discovery and development); (3) benefits in health care practice (streamlining the workflow, cost saving, documentation, personalized medicine, and improved health literacy); and (4) benefits in health care education including improved personalized learning and the focus on critical thinking and problem-based learning. Concerns regarding ChatGPT use were stated in 58 (96.7%) records including ethical, copyright, transparency, and legal issues, the risk of bias, plagiarism, lack of originality, inaccurate content with risk of hallucination, limited knowledge, incorrect customs, cybersecurity issues, and risk of inferences. The promising applications of ChatGPT can induce paradigm shifts in health care education, research, and practice. However, the embrace of this AI chatbot should be conducted with extreme caution considering its potential limitations. As it currently stands, ChatGPT does not qualify to be listed as an author in scientific articles unless the ICMJE/COPE guidelines are revised or amended. An initiative involving all stakeholders in health care education, research, and practice is urgently needed. This will help to set a code of ethics to guide the responsible use of ChatGPT among other LLMs in health care and academia.

**Keywords:** machine learning; digital health; artificial intelligence; healthcare; ethics

#### 1. Introduction

Artificial intelligence (AI) can be defined as the multidisciplinary approach of computer science and linguistics that aspires to create machines capable of performing tasks that normally require human intelligence [1]. These tasks include the ability to learn, adapt, rationalize, understand, and to fathom abstract concepts as well as the reactivity to complex human attributes such as attention, emotion, creativity, etc. [2].

The history of AI as a scientific discipline can be traced back to the mid-XIX century at the Dartmouth Summer Research Project on AI [3]. This was followed by the development of machine learning (ML) algorithms that allow decision-making or predictions based on <https://www.proquest.com/openview/431d4fd422e36f1d3fde71d223d4e5d3/1?pq-origsite=gscholar&cbl=2032390>

*Healthcare* 2023, 11, 987; <https://doi.org/10.3390/healthcare11090987>

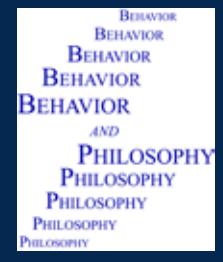
<https://www.mdpi.com/journal/healthcare>

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## Magnetic Stimulation: The Latest Fad Magnet for Autism Spectrum Disorder (p. 6)

procedure with autism, reviewing approximately 100 patients that have undergone rTMS protocols with therapeutic intent across 8 studies that all used different parameters and locations of stimulation. The authors summarized studies included by (a) number of participants, (b) distribution of autism vs. diagnostic criteria, (c) age of participant's, TMS parameters (number of sessions, frequency, location), (d) effects, and (e) whether there were adverse events/side effects. Results for TMS (one- to two- sessions) found no group differences in seven of the nine studies. Results for rTMS found improvements in all eight studies. However, the behavioral improvements appear to be limited to repetitive behaviors, irritability, and specific measures of attention. Additionally, the quality of the evidence seems to be mixed. For example, only 2 of the 8 studies used a double-blind experimental design, and 5 of the 8 studies failed to specifically indicate subject characteristics. Oberman and colleagues also noted that clarification was needed as to the proportion of subjects had experienced improvement in symptoms and what proportion had experienced no improvement or worsening of symptoms following rTMS. Furthermore, the authors noted that it was unclear what protocol for the treatment (i.e., stimulation level, number and timing of sessions) was identified to be best to target specific symptoms of ASD. The authors concluded that therapeutic results have been mixed, suggesting there currently is insufficient evidence to conclusively support the clinical widespread use of TMS in ASD, neither diagnostically nor therapeutically.

Wexler and colleagues (2021) noted that TMS has been approved by the Food and Drug Administration for specific conditions, including

depression, migraines, obsessive-compulsive disorder, and smoking cessation. This procedure has not been approved for use with ASD. However, in their report, the authors found that there are numerous websites of clinics that offer TMS who claim that this procedure offers potential benefit when treating ASD. Wexler and colleagues caution about potential ethical issues if using for ASD and other treatments for which there is little empirical research to support its use.

In addition to the issue of the existence of experimental evidence showing effectiveness, another issue relates to potential physical damage through magnetic stimulation. Huashuang and colleagues (2022) conducted a systematic review and meta-analysis of the prevalence of adverse effects related to TMS. A total of 11 studies met the inclusionary criteria. The authors found that all reported adverse effects were mild, with relatively few serious adverse effects and were resolved with medication or rest. Further, Huashuang and colleagues found that there was no significant chance in prevalence of adverse effects for (a) purpose of using TMS, (b) mean age of participants, (c) whether the stimulation was site was dorsolateral pre-frontal cortex, (d) intensity of TMS, and (e) the number of stimulation sessions. The authors concluded that further studies are necessary to clarify the variation in the prevalence. In sum, the overall prevalence of adverse effects among ASD was 25% and further studies are needed to clarify the variation in the prevalence.

Thus, scientific research emphasizes three points: (1) TMS is not approved for use with ASD; (2) the research conducted on these procedures with individuals diagnosed with ASD shows mixed findings, with weak evidence suggesting it is effective,

and (3) there seem to be minimal and nonpermanent adverse effects of the procedure. Thus, more information and research are crucial before determining the potential effects of this new treatment. We urge readers to closely review scientific literature. We must consider the claims about the treatment effects carefully before making a reasonable decision about whether there is any merit behind this new fad treatment. For magnetic stimulation therapy, caregivers should wait to use this form of treatment until there is a significant body of research supporting its effectiveness. We urge our readers to be skeptical about PrTMS and consider the implications of claims that this intervention cures autism.

Applied Behavior Analysis (ABA) is considered the only ASD treatment considered evidence-based practice by the United States Surgeon General (1999), meaning that ABA has passed scientific tests of its usefulness, quality, and effectiveness. A defining feature of ABA is that it focuses on behaviors of social importance, intervenes with research-based strategies and tactics to improve desired behaviors, and utilize scientific methods to demonstrate relations between their interventions and the behavioral improvements (Cooper et al., 2020). People seeking support for working with individuals with ASD should review the literature about ABA on this website.

[Article & References on behavior.org](https://www.behavior.org)



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Introduction by  
Dr. Rob Holdzambeck  
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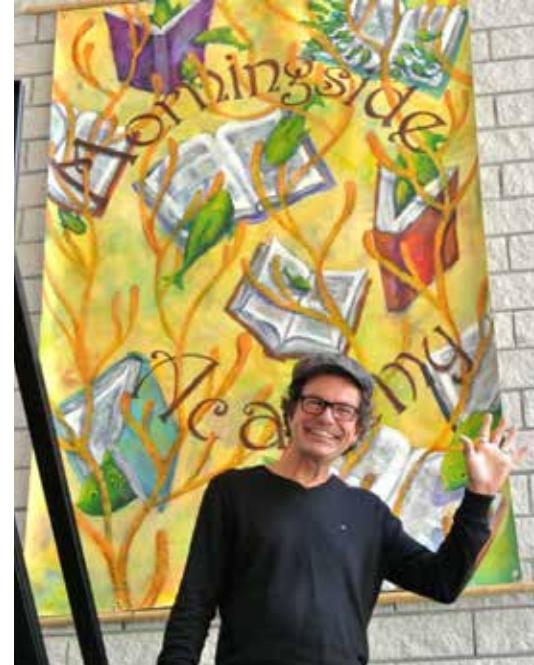
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Our friends at the Association for Behavior Analysis International announced that the ballots for their 2023 Executive Council election were tallied on April 7, 2023, during the annual meeting of members.

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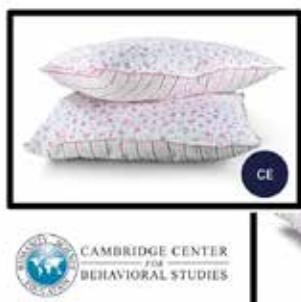


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### Sleep Issues and Disorders: A Behavioral Conceptualization and Discussion

**Friday, April 28 - 11 am - 2 pm (EDT)**

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**Dr. Chunying Jin**

and without autism spectrum disorder (ASD). These problems are unlikely to abate without treatment, resulting in adverse long-term effects on the daytime functioning and well-being of individuals with ASD, their siblings, parents, and others. Understanding and addressing sleep problems requires viewing behavior that facilitate and disrupt healthy sleep through the lens of a contingency. Functional assessment is an iterative process designed to identify the contingencies that maintain falling asleep and those that maintain problem behavior that interfere with sleep onset. Through this process, caregivers and clinicians are more equipped to craft an individualized, function-based, and consumer-friendly treatment programs for individuals diagnosed with ASD whose sleep is chronically disturbed. The goal of this presentation is to (a) provide an introduction of the types of sleep problems that young children experience, (b) discuss the core behavioral model of sleep, (c) describe the common variables that influence sleep and sleep problems and (d) discuss a functional assessment process for sleep problems in young children. [Open Brochure for CE Opportunities](#).



### How Supervision Reveals the Best in Us

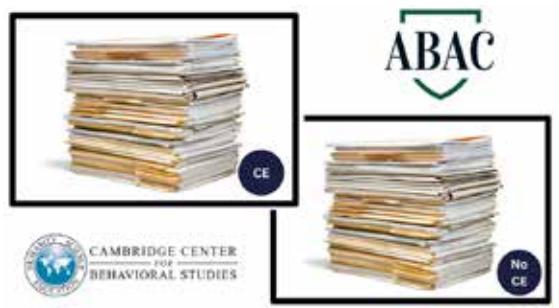
**Thursday, May 11 - 5 pm - 7 pm (EDT)**

*Recordings available for 14 days*



**Dr. Amber Valentino**

requirement. Supervisors have an opportunity to ensure supervision is of the highest quality. In this 2- hour presentation, Dr. Valentino will provide recommended supervision practices that are easy to implement in practice and are designed to help elevate supervision to the next level. [Open Brochure for CE Opportunities](#).



### Contextualizing Contemporary Research Ethics Policies and Practices in Significant Historical Events

**Friday, June 9 - 11 am - 1 pm (EDT)**

*Recordings available for 14 days*



**Dr. Sarah C. Mead Jasperse**

ethics standards," (Mead Jasperse & Kelly, 2023, p. 37). However, as a behavior analyst in 2023, it is easy to pick up current professional ethics codes and apply the items in a rule-governed manner without learning about the significant historical events and foundational ethics documents that shaped modern policies and practices. This learning event is needed to provide our field with a succinct, applicable summary of the why behind the what of modern research ethics practices and offer a guide of how we can use the past to craft a better future. This learning event will provide a brief primer regarding significant historical events and foundational documents that have resulted in the contemporary research ethics policies and practices in the field of behavior analysis. This walk through the last century, from the Nuremberg Code to the Declaration of Helsinki, the Belmont Report, and 45 CFR Part 46 - Protection of Human Subjects will provide a summary of why the codification of requirements such as "informed consent" and "Institutional Review Board" oversight was necessary. The linkages between these historical events and the current research ethics practices will be discussed. Additionally, we will consider situations in which current research ethics codes do not provide explicit instruction but foundational documents may provide additional guidance. [Open Brochure for CE Opportunities](#).

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A screenshot of the Cambridge Center for Behavioral Studies website. The top navigation bar includes links for "HOME", "ABOUT", "COURSES", "CONTACT", and "LOG IN". The main content area is titled "Courses" with the sub-instruction "Get started earning CEUs". Below this, there is a search bar and a sidebar with filters for "All Courses", "Registration", "About", "Departments", "Research", "Philosophy and Values", and "Book Chapters". The main content area displays three course cards with images of presenters and brief descriptions. The first card is for "On being a trusted messenger: Elucidating supervisory practices for the next generation of behavior analysts" by Dr. Jennifer Williams, with 10 CEU hours. The second card is for "The Limits of Staff Management: What Happened When You've Had, There!" by Dr. Jennifer Williams, with 10 CEU hours. The third card is for "Virtual Leadership - What Do We Do" by Dr. Jennifer Williams, with 10 CEU hours.

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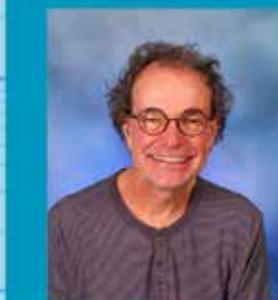
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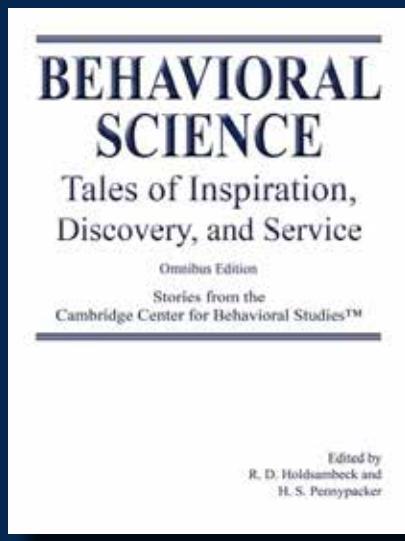
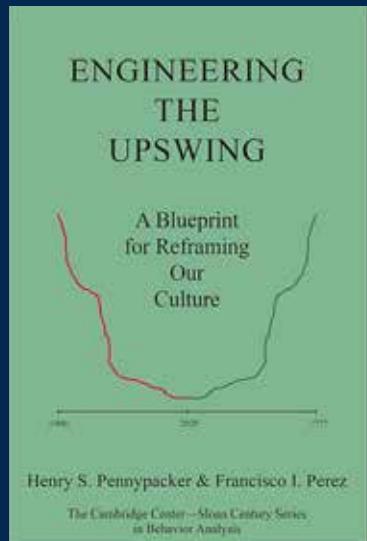
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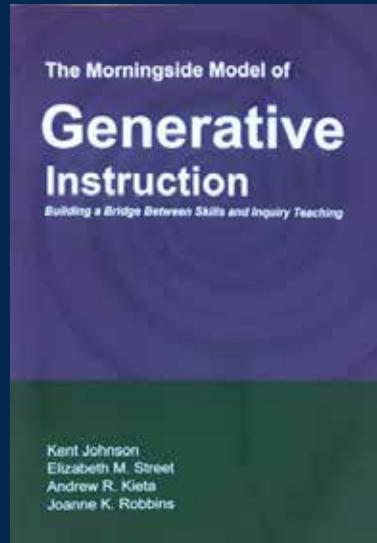
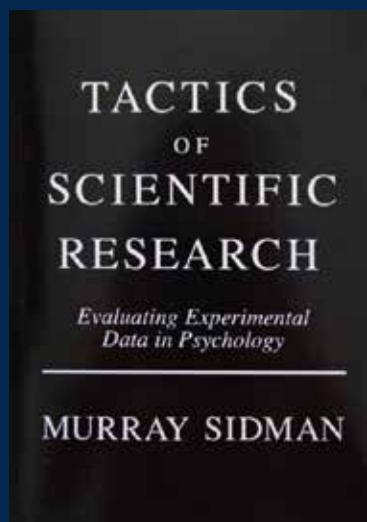
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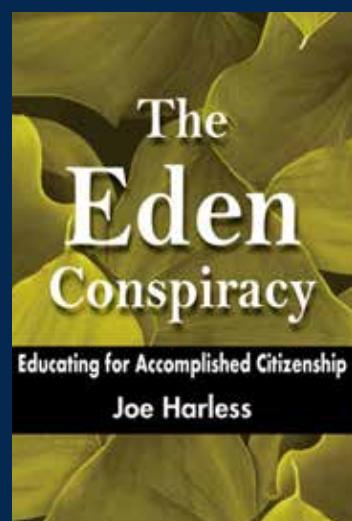
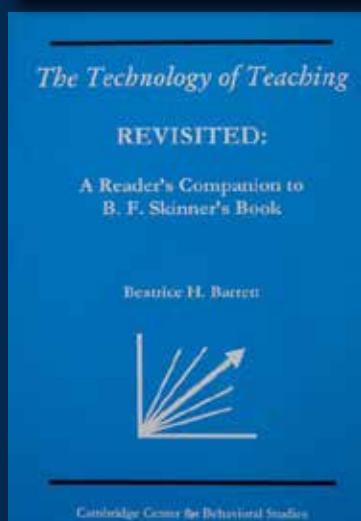
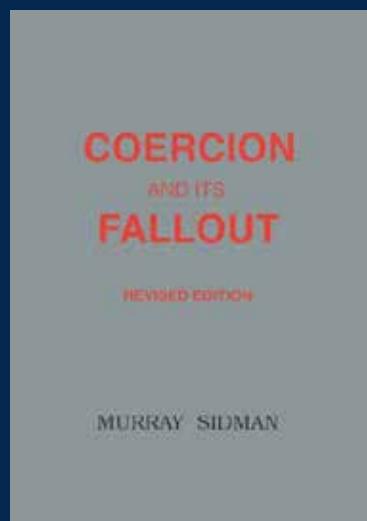
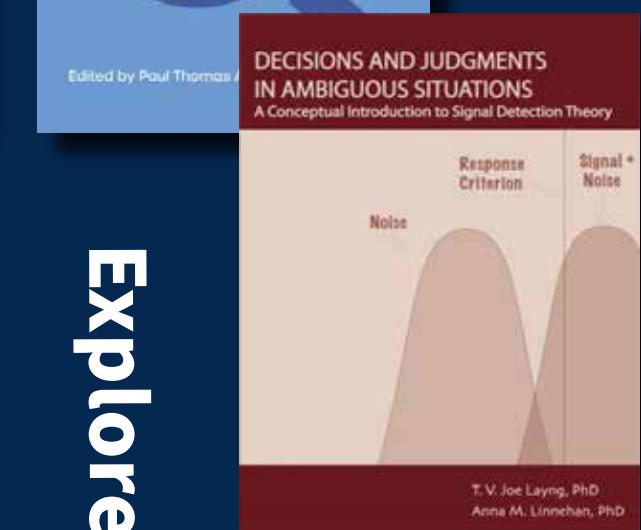
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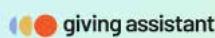
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