

Using Behavior Analytic Principles to Enhance On-Campus and Online Instruction

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Dr. Rachel Potter (EdD)

Board Certified Behavior Analyst-Doctoral (BCBA-D)

Licensed Behavior Analyst (LBA)



Please chime in the chat...

What are some words or phrases you associate with the term “Applied Behavior Analysis?”

- **If the term is new to you, that’s totally fine too 😊**

Please chime in the chat...

Does your institution offer coursework in Applied Behavior Analysis?

If so, what department (ABA is sometimes in its own department and sometimes connected with psychology or education)?

What is ABA?

- From the Behavior Analyst Certification Board (BACB):

“**Behavior analysis** is the science of behavior, with a history extending back to the early 20th century. Its underlying philosophy is behaviorism, which is based upon the premise that attempting to improve the human condition through behavior change (e.g., education, behavioral health treatment) will be most effective if behavior itself is the primary focus.”

https://www.youtube.com/watch?time_continue=7&v=HnyYwWlenJg

- From Autism Speaks:

“Applied Behavior Analysis (ABA) is a therapy based on the science of learning and behavior. Behavior analysis helps us to understand:

How behavior works

How behavior is affected by the environment

How learning takes place

ABA therapy applies our understanding of how behavior works to real situations. The goal is to increase behaviors that are helpful and decrease behaviors that are harmful or affect learning.”

Did you notice?

- Did you notice that neither definition stipulated that ABA is only for autism or other individuals with disabilities?
- As a therapy/treatment/intervention, ABA can have applications far beyond autism and developmental disabilities. *Note, that most ABA practitioners do, however, work within that scope.*

Seven Dimensions of ABA

- Baer, Wolf, & Risley, 1968
(Journal of Applied Behavior Analysis)
- The “pinnacle” article defining the practice of ABA
- *Again, none of these seven dimensions imply that ABA is specific to any one population.*
- Applied: Am I addressing matters of social/personal importance?
- Behavioral: Am I addressing measurable/quantifiable behaviors?
- Analytic: Am I collecting, graphing, and analyzing data to drive instructional decisions?
- Conceptual Systematic: Am I using the principles of behaviorism?
- Technological: Am I recording methodology in a way that is replicable?
- Effective: Am I seeing results, and/or shifting direction when no progress is evident?
- Generality: Am I working to ensure the skill can be generalized?

ABA Applications in Higher Ed

ATHLETICS & PHYSICAL EDUCATION

Note that all articles are from the *Journal of Applied Behavior Analysis*

- Bicard, D. F., Lott, V., Mills, J., Bicard, S., & Baylot-Casey, L. (2012). Effects of text messaged self-monitoring on class attendance and punctuality of at-risk college student athletes.
- Kladopoulos, C.N. & McComas, J.J. (2001). The effects of form training on foul-shooting performance in members of a women's college basketball team.
- Moore, J.W. & Quintero, L.M. (2019). Comparing forward and backward chaining in teaching Olympic weightlifting.
- Roane, H.S. & Kelley, M. E. (2004). Behavioral momentum in sports: A partial replication with women's basketball.
- Ward, P. & Carnes, M. (2002). Effects of posting self-set goals on collegiate football players' skill execution during practice and games.

ABA Applications in Higher Ed

SAFETY, SECURITY, CAMPUS CARE, & SUSTAINABILITY

- Clayton, M.C. & Helms, B.P. (2009). Increasing seat belt use on a college campus: An evaluation of two prompting procedures.
- Manuel, J.C. & Sunseri, M.A. (2007). A diagnostic approach to increase reusable dinnerware selection in a cafeteria.
- Watson, T. S. (1996). A prompt plus delayed contingency procedure for reducing bathroom graffiti.

Note that all articles are from the *Journal of Applied Behavior Analysis*

ABA Applications in Higher Ed

SELF-MANAGEMENT & “ADULTING”

Note that all articles are from the *Journal of Applied Behavior Analysis*

- Jones, M.E., Allday, R.A., & Givens, A. (2019). Reducing adolescent cell phone usage using an interdependent group contingency.*
- Perrin, C.J., Miller, N., Haberlin, A.T., Ivy, J.W., Meindl, J.N. & Neff, N.A. (2011). Measuring and reducing college students' procrastination.
- Stocco, C.S., Thompson, R. H., Hart, J.M., & Soriano, H.L. (2017). Improving the interview skills of college students using behavioral skills training.

**technically this study was with older high school students, but could have higher ed applications*

ABA Applications in Higher Ed

CLASSROOM INSTRUCTION & ACADEMICS

Note that all articles are from the
*Journal of Applied Behavior
Analysis*

- Fienup, D.M., Hamelin, J., Reyes-Giordano, K., & Falcomata, T.S. (2011). College-level instruction: derived relations and programmed instruction.
- Griffith, K.R., Ramos, A.L., Hill, K.E., and Miguel, C.F. (2018). Using equivalence-based instruction to teach piano skills to college students.
- Marmolejo, E.K., Wilder, D.A., & Bradley, L. (2004). A preliminary analysis of the effects of response cards on student performance and participation in an upper division university course.
- Mayfield, K.M. & Chase, P.N. (2002). The effects of cumulative practice on mathematics problem solving.
- Montes, C.C., Heinicke, M.R., & Geierman, D.M. (2019). Awareness training reduces college students' speech disfluencies in public speaking.

ABA Applications in Higher Ed

CLASSROOM INSTRUCTION & ACADEMICS

Note that all articles are from
the *Journal of Applied Behavior
Analysis*

- Neef, N.A., VanNorman, R., & Ferreri, S.J. (2006). A comparison of interteaching and lecture in the college classroom.
- Neef, N.A., McCord, B.E., & Ferreri, S.J. (2006). Effects of guided notes versus completed notes during lectures on college students' quiz performance.
- Neef, N.A., Perrin, C.J., Haberlin, A.T., & Rodrigues, L.C. (2011). Studying as fun and games: Effects on college students' quiz performance.
- Ryan, C.S. & Hemmes, N.S. (2005). Effects of the contingency for homework submission on homework submission and quiz performance in a college course.

ABA-related strategies that can be implemented in college classrooms

- Antecedent Interventions
- Precision Teaching (SAFMEDS)
- TAG Teaching (Targeted with Acoustical Guidance)
- Active Student Responding (ASR)
- Personalized System of Instruction (PSI)
- Video Modeling
- Forward and Backward Chaining
- Visual Data Analysis/Visual Inspection of Data

not an exhaustive list, by any means

Antecedent Interventions

- These are interventions you put into place in advance of instruction to set the learner up for success. Some examples (for in seat or in LMS) may include:
 - Setting up the learning space to maximize attention/focus
 - Explicit instructions orally and in writing
 - Syllabus
 - LMS tour
 - Exemplars/Non-exemplars
 - Rubrics
 - Relationship building
 - Your values and your own actions/behaviors

Precision Teaching & TAG Teaching

- **PRECISION TEACHING**

- Builds fluency
- Students measure accuracy and rate of their performance AND graph it
- Short duration activity (typically one minute at a time)
- Great for basic academic skills
 - Math calculation
 - Vocabulary, all subjects
- SAFMEDS (Say All Fast Minute Every Day Shuffle)

- **TAG TEACHING**

- Targeted Acoustical Guidance
- Used when movement/positioning is important
 - Athletics
 - Music & Movement
- Requires a setting where the task is repeated frequently for short durations at a time
- Needs to be implemented 1:1, but can be in a group setting

Active Student Responding (ASR)

- Requires frequent checking for understanding in a formal or informal way
 - Allows the instructor to stop and clarify or re-teach before moving on (with in-person or synchronous online)
 - Having students track and graph their own performance is shown to build fluency and attending skills
 - Can be built into online instruction also
- **METHODS:**
 - Clickers
 - Colored Cards
 - Individual dry-erase boards
 - Holding up fingers
 - Writing down responses
 - Cloze Exercises
 - General responses
 - Guided notes
 - Provided that they are assessed in the moment or at frequent intervals

PSI & Video Modeling

- PERSONALIZED SYSTEM OF INSTRUCTION

- Self-paced, within limits
- Requires mastery before moving on
- Group instruction is the motivator
- Assess students based on amount mastered
- Requires frequent assessment and reassessment (and quick feedback)

- VIDEO MODELING

- Create exemplars for the student to view prior to expected behavior/task
- The point: see what success looks like
- Academics, athletics, and other uses

Forward and Backward Chaining

- **FORWARD CHAINING**

- Teach step one (student demonstrates mastery)
- Teach step two (student demonstrates mastery of step one and two in sequence)
- Teach step three (student demonstrates mastery of step one and two and three in sequence)

- Etc...

- **BACKWARD CHAINING**

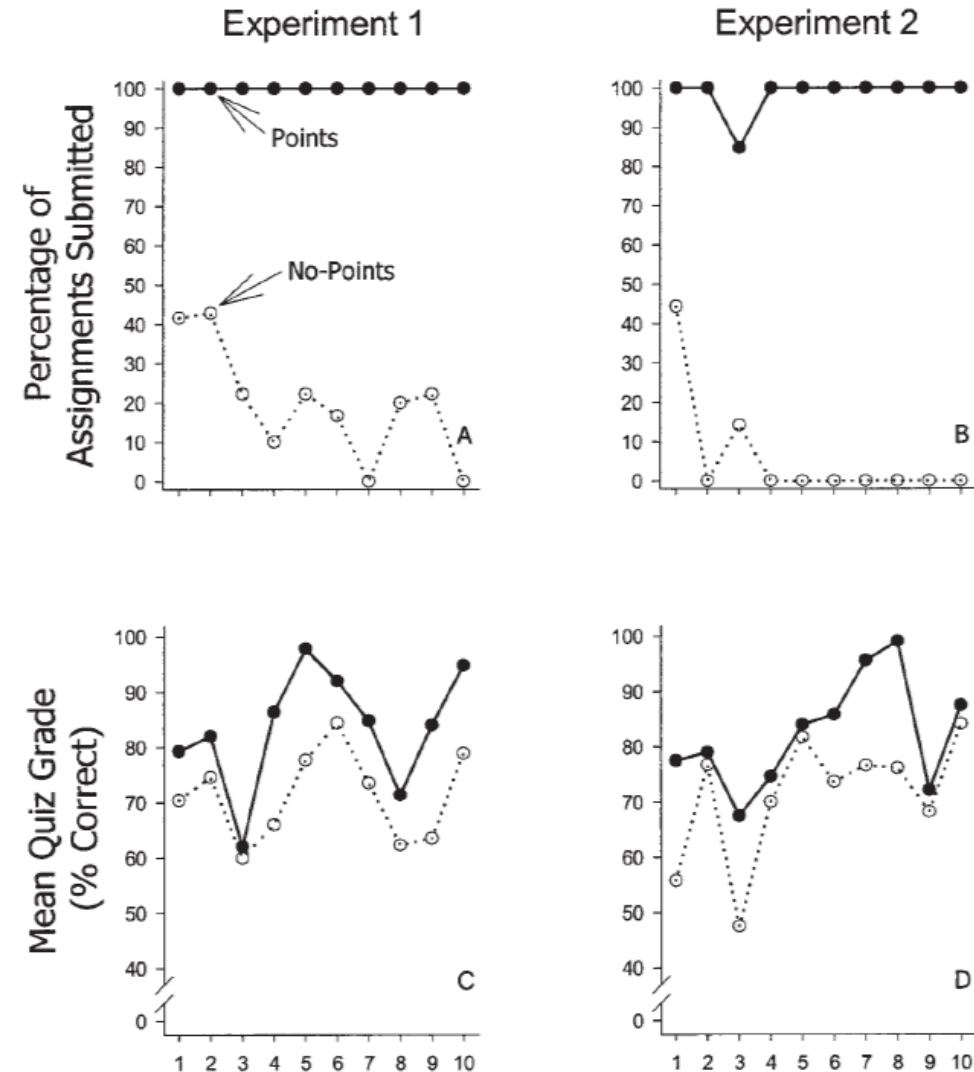
- Demonstrate all steps
- Demonstrate all but last step (student demonstrates mastery of last step)
- Demonstrate all but last two steps (student demonstrates mastery of last two steps in sequence)
- Demonstrate all but last three steps (student demonstrates mastery of last three steps in sequence)

- Etc...

Visual Data Analysis/Visual Inspection of Data

- Measure student performance
- Graph it View graphs showing performance
- Made instructional decisions based on visual inspection of data
- Revisit data visually for change/improvement

Image from Ryan & Hemmes (2005)



ABA – my role as a behavior analyst on an institutional “Pandemic Team.”

How might you incorporate a behavior analytic approach to something in your course?

Resources – where to go to learn more

- Journal of Applied Behavior Analysis
- Behavior Analysis in Practice (Journal)
- Vargas, J. (2020). *Behavior Analysis for Effective Teaching*, 3rd Ed. Routledge.
 - *Focus is K12, but many strategies are scalable to higher ed*
 - *Fun fact: author Julie Vargas is BF Skinner's daughter*

Questions?

- Questions about this information?
- Want to chat more later about this?
- Want a copy of any of these articles?

Dr. Rachel Potter

Mary Baldwin University

540-887-7134

rpotter@marybaldwin.edu