

Is Behavior Analysis Meeting our Obligation to Adults with ASD?

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The EPIC School



CalABA, Saturday 2/27/16 Santa Clara, CA The handouts from todays talk will be available on the EPIC School website as downloadable PDF files:

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POINT 1

Sometimes I think I am an autism professional who works in the field of applied behavior analysis. Other times I think I am a behavior analyst who works in autism. The truth is that I am both. I think you need to be both. Among the many context variables that need to be considered in the pursuit of effective ABA-based intervention is the neurological and behavioral expression of ASD in a student or adult client.

A generalist?

If you work with young kids you get to be a specialist. Whether you're a special educator, speech pathologist, occupational therapist, or board certified behavior analyst you get to be a specialist. When working with adolescents and young adults, however, you don't get to be a specialist and, in fact, need to be something of generalist. In other words, you need a good working knowledge of ABA, Education Law, Labor Law, Mental Health diagnoses and intervention, medication side effects, sexuality, menstrual care, job development, job coaching, community-based instruction, generalized systems of communication, staff training, community training, and that's just to start.

Thankfully...

Applied behavior analysis has myriad applications far beyond ASD so my knowledge, expertise, and experience in the ABA/ASD field is pretty generalizable these other areas of need.

POINT 2

Adulthood is complex ADULTHOOD "IF YOU'RE NOT TIRED, YOU'RE NOT DOING IT RIGHT."

And behavioral intervention with adults is, often, equally complex



Although much of the behavior analytic skill acquisition research in children with ASD may be directly generalizable into adolescence and adulthood, this is not true across all aspects of adult life. This is because many of the skills associated with independent adulthood (e.g., personal safety, sexuality, etc.) are complex behavior chains that may, or may not, be repeated the exact same way every time.

Chaining has been demonstrated as being an effective way to teach a young student the necessary behavior sequence for zipping up a jacket (e.g., Walls, Zane, & Ellis, 1981)

Zane, T., Walls, R. T., & Thvedt, J. E. (1981). Prompting and fading guidance procedures: Their effect on chaining and whole task teaching strategies. Education & Training of the Mentally Retarded, 16(2), 125-130.

Classroom TA - Zippering

- Grasp the bottom edges of the front of the jacket at the base sides of the zipper with left and right hands, one of each side of opening and pull edges horizontal till zipper ends close.
- Use left thumb and forefinger in pincer grasp on zipper above larger inset tooth at the bottom of the zipper.
- 3. Grasp zipper pull on the right side of the jacket with right thumb and forefinger in pincer grasp.
- Line up the edges of the zipper, and then move the zipper pull side under the left teeth.
- 5. Guide the zipper pull hole on the left side of the pull-tab onto large guide tooth of the left side of the zipper.6. Push with your right middle finger braced under the base of the zipper pull
- or vais wait your ingit intended inget or acceled under the observed the applet plant while holding the left side of the zipper so it does not move. OR hold the right zipper pull stationary while pushing the left tooth down into the zipper pull hole.
- 7. When the large left tooth reaches the bottom of the zipper pull hole (you can turn over the zipper pull and see the tooth edge when it is all the way into the zipper pull), hold the base of the jacket next to the large left tooth with your left forefinger and thumb, and with your right forefinger and thumb in a pincer grasp (with middle finger removed from the base of the zipper), pull with the zipper pull tab up along the zipper until the slide reaches neck height.

Chaining can also be used to teach a young adult how to independently shop for groceries at the local supermarket. The task analysis for zipping up a jacket is linear with no real variation over time or even across jackets. Conversely, the task analysis for grocery shopping may change each time it is practiced due to such variables as the availability of a desired item, presence or absence of crowds, stocking being in progress during the trip, or the self-checkout aisle not available. Further, while the steps chained together for wearing a jacket consist primarily of motor skills, the steps chained together for grocery shopping are more complex and include motor skills, navigation skills, and social skills.

So we have a very complex, challenging, yet inevitable outcome called adulthood. And while we know much of what constitutes "best practices" in our classrooms we are less knowledgeable once we step out of the classroom and into the community.

POINT 3

MY QUASI-EXPERIMENT

- □ Location: A private, behaviorally-based school for individuals with autism located in NYC.
- □ Two classrooms each with 5 adolescents with autism each student provided ABA-based instruction in a 1:1 ratio.
- A timer was placed in the classroom and all instructors were told to move away from their students when it rang.
- Data were then collected on what the students did in the absence of the instructor.
- ☐ What do you think the students did?

Nothing

They did nothing

So what does this tell us?

- Everything we were doing was teacher directed. In other words, all student behavior was prompted, mediated, and reinforced via the instructor.
- Student engagement was maintained, at least in part, by negative reinforcement (i.e., If I do this you will stop badgering me).
- None of the skills we were teaching were viewed as being of use of value by my students.

Yet at the same time in dens and bedrooms across the country

O The average American spends 142 hours per year (3.5 standard work weeks) playing video games. Worldwide, the total is somewhere around 3.2 Billion hours annually. I find this fascinating as game players have access to multiple, competing schedules of reinforcement that maintained an alternative behavior set prior to accessing to MMPGs.

Why?

"When you strip away the genre differences and the technological complexities, all games share four defining traits:

- \square A goal,
- □ Rules,
- □ A feedback system, and
- □ Voluntary participation."

Jane McGonigal (2011, p. 21)

Reality is Broken: Why Games Make
Us Better and How They Can Change
the World

The 7 Dimensions of ABA

- ☐ **Applied:** Deal with problems of social importance (A goal).
- Behavioral: Deal with measurable behavior or reports if they can be validated (Rules).
- Analytic: Require an objective demonstration that the procedures caused the effect (System of Feedback).
- ☐ **Technological:** Are described well enough that they can be implemented by anyone with training and resources (Rules)
- Conceptual Systems: Arise from a specific and identifiable theoretical base rather than being a set of packages or tricks (A goal, feedback and rules).
- ☐ Effective: Produce strong, socially important effects (Feedback)
- ☐ Generality: Designed from the outset to operate in new environments and continue after the formal treatments have ended (Perhaps this is where voluntary participation fits in)

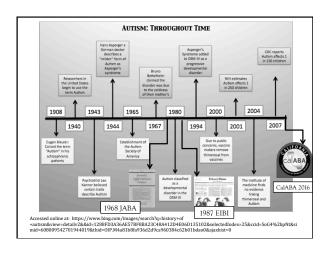
Baer, D.M., Wolf, M.M., & Risley, T.R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis*, 1, 91-97.

So we clearly have goals, rules, and a system of feedback

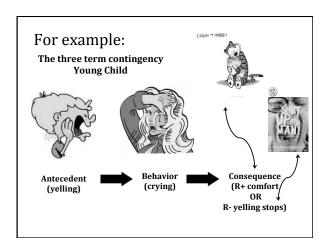
So maybe we need to consider generality, (voluntary participation) with adolescents/adults with ASD if we are to teach skills & skill sets that are initiated independently, generalizable, and maintained across time & environments.

POINT 4

We really have only been a field of practice for a very short period of time.



While our research base in the effective application of Behavior Analytic principles in the complex area of adulthood/ASD has slowly grown since 1968, there continues to be a perception that the application of this knowledge is pretty simplistic.



3-Term Contingency with Adolescents & Adults Confused MOs/Setting Events Learning history Adolescence & its impact Communication challenges Aggression Social challenges Mental health challenges "Let's go Physical health Medication side effects to work" ·Environmental stressors ·Curriculum consideration **Behavior** Antecedent Sexuality Consequence (Aggression) Sleep issues (Directive) (Some unknown •Aging in & of itself •Yada, yada, yada... desire met) AND a very frustrated BCBA

Prompts: Not Necessarily All Bad

In ABA-based intervention the use of verbal prompts is often regarded as, well, heresy. They are hard to fade (theoretically) and have a low response effort on behalf of the prompter so they tend to be repeated with increased volume and tone. Having said that I want to point out that the world outside your classroom functions on verbal prompts. Besides, apparently we all rely on some level of prompting for skills we should have already mastered.





POINT 5

What to do (I think)

Applied Behavior Analysis, Adults, and Neurological Curb Cuts

#1 ABA as a three term contingency

- ☐ It seems that as a field we have had a multi-decade love affair with the terms "Behavior" and "Analysis". The term "Applied" however has been treated more like a Friend-with-Benefits who we call upon when we think no one is looking.
- Yet the Applied aspect of our science is, in my opinion, equal in importance to Behavior or Analysis are.
- When our classrooms become indistinguishable from a clinic or research setting we are, perhaps inadvertently, diminishing the relevance and central importance of Applied in the development of generalizable skills that are maintained over time.

#2

Teach Resilience, Choice Making and Problem Solving*

(*or, as a behavior analyst, behavioral cusps that are resistance to extinction)

Resilience is an individual's ability to properly adapt to stress and adversity. Resilient behavior develops over time and is is composed of a variety factors which prescribe the manner in which we respond to challenges. Behavioral competencies associated with resilience include:

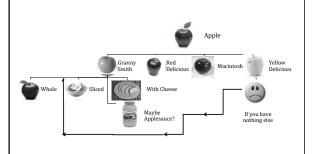
- Perseverance, or the ability to continue with the behavior in question in the absence of high rates of positive reinforcement.
- ☐ Flexibility, or the ability to generate new strategies to solve a particular problem.
- A learning history that has included error identification and correction as a specific instructional goal (i.e., problem solving)
- ☐ The ability to manage impulsive behavior and/or ignore environmental distractors

Problem Solving

In an attempt to identify factors that may contribute to improving outcomes for individuals with ASD in college programs Giaquinto, (2015) surveyed 40 young adults ages 18-26 across 4 college campuses in order to investigate correlations between mindfulness, social problem solving, social anxiety and Quality of Life. Predictive relationships among social anxiety and Quality of Life were also examined. Results indicated Positive Problem Orientation to social problem solving was a predictor of [high]psychological Quality of Life scores. Students reported higher physical Quality of Life scores than did their parents.

Giaquinto, M. B. (2015). Mindfulness, social problem solving, social anxiety and quality of life in college students with autism spectrum disorders. Dissertation Abstracts International Section A: Humanities and Social Sciences, 57(E10-AE)]. (UMN D. AJA3622265)

But even most simple choices are less simple than you think. For example: "Would you like an apple?"



#3 Train the Typicals

"If you neurotypicals have all the skills, why don't you adapt for a while dammit! Why is it always my fault?

Donna Vickers

A corollary to #3

Consider Assessing Social Validity

Social Validity refers to the acceptability of, and satisfaction with, intervention procedures, usually assessed by soliciting opinions from the people who receive and implement them. Intervention procedures for child [and adult] behavior are socially valid when people judge them as being acceptable. (Luiselli & Reed, 2011)

Luiselli, J.K., Reed, D.D., (2011). Social Validity, in S. Goldstein & J. Naglieri (Eds). Encyclopedia of Child Behavior and Development. Pp. 1406. New york: Springer.

#4

Teach the right skills in the right context (i.e., where the behavior is most likely to be displayed.

What you do
EVERY DAY
matters more than
what you do
ONCE IN A WHILE.

Gretchen Rubin

2

Gretchen Rubin is the author of "Better then Before" and "The Happiness Project" among

What you do every day might include

- 1. Wake to alarm clock
- 2. Morning routine
- Shower, dress, hygiene, etc.
 Coffee/Breakfast
- Coffee/Breakfast
 Remember keys & lock door
- 4. Kemember keys & lock
- 5. Get to work somehow
- 6. Follow verbal/written prompts
- Use restroom
 Take a break
- 9. Purchase and eat lunch
- 10. Fix mistakes
- 11. Ask for help
- 12. Use computer/smart phone
- 13. Get home somehow

- 14. Get the mail
- 15. Unlock the door.
- 16. Change out of work clothes
- 17. Get something to eat
- 18. ADLs
- 19. Prepare dinner and eat
- 20. Clean up. Use dishwasher
- 21. Go on-line
- 22. Home/Office work
- 23. Shower
- 24. Prep for bed inc. meds
- 25. Review next day schedule
- 26. Set alarm clock
- 27. Sleep

A corollary to #4

Independent of how evidencebased your interventions are, teaching the wrong skills well is really no better than teaching the right skills poorly.

What defines a critical instructional target?

- Any skill that, when acquired, enables the individual to independently complete a variety of relevant tasks and engage in desired activities, AND
- □ Any skill that is used with sufficient frequency to remain in the individual's repertoire. The exception here are safety skills which, ideally, are low response frequency skills AND
- □ Any skill that can be acquired within a reasonable time frame*.

FREQUENCY OF USE								
	Objective	≥ 1X/day	1X/day	2- 3X/Wk	1X/Wk	1- 2X/Mnt	Less Frequent	Importance* 0-2
1	"When is your birthday?"						x	0
2	"Where do you live?"						Х	2
3	Wiping after BM	х						2
4	Make a meal with recipe				х			1
5	Make meal with Microwave			х				2

0 = Not Important; 1= Maybe important but not essential; 2 = Important

In general, skills or skill sets with the greatest potential to directly impact the lives of adolescents with autism may also be those where fewer of the controlling variables are known. In other word, they are risky skills. These are, however, the skills and conditions under which the field of ABA may have its greatest potential impact with reference to preferred outcomes. Unfortunately, this has not been an active focus of research or practice and, as such, our knowledge-base is lacking.

#5

Focus on group learning in context whenever appropriate.



To many, ABA has become educationally synonymous with DTT delivered in a 1:1 staff: student ratio. (Oh, and btw we did that.) Yet there are very good reasons to train staff in the provision of effective* group, ABA-based instruction. First, after graduation the 1:1 aide is a bit like Big Foot. I have never seen it but it is fun to speculate on its exhistance. Second, staff who are well trained to work in dyads and triads continue to provide effective intervention during times of staft absences.

 * Currently we are considered a standard of no greater than a 10% reduction in rate of skill acquisition when working in groups.

#6

Teach self management & self reinforcement



#7 Technology

Technology, whether low tech or high tech, is part of the world as we know and is changing the lives of individuals with ASD. From assistive communication technology on an I-Pad, to GPS tracking, to Apple Pay, to self driving cars, and to instruction via virtual reality we really have only scratched the surface in terms of technology's potential.

SETT Frame-work for feature matching

(Zabala, 2005)

SETT (Student, Environment, Task, Tools) is useful in matching a particular piece of technology to a particular student and his or her needs. Some of the questions asked in a SETT analysis include, but are not limited to:

STUDENT

- $\hfill \Box$ What are the student's current abilities?
- ☐ What are the student's current needs?
- What does this student need to do that is currently difficult or impossible?
- ☐ What are the functional areas of concern?

SETT Frame-work for feature matching

(Zabala, 2005)

ENVIRONMENT

- ☐ Where does the student need to use the skill?
- ☐ What is the physical arrangement of the environment?
- ☐ What other activities take place in the environment?
- What activities do other students do that this student is excluded from?

TASKS

- ☐ What specific tasks need to be addressed?
- lacksquare What are the expectations relative to each task?
- How is success defined for each task?

SETT Frame-work for feature matching

(Zabala, 2005)

TOOLS

- Are the tools being considered along a low-high tech continuum?
- Are the tools student centered and designed to meet current needs?
- Are the tools being considered for their features rather than brand name?
- How easy will the tool be for the student to use?
- What training will the student require to use the proposed tool?
- ☐ What training will be required for staff and family?

Please do not limit you, or your student, to "special needs" apps. Many of the most useful apps are designed for the general population. This might include apps that allow you to purchase without using money, let you know what bus to take where and it's schedule, identify appropriate clothing as a function of the weather report, or walk safely from Point A to Point B following a map and verbal directions. For many adolescents and adults with ASD, the question is not, "Do they need some form of tech support?" but rather "What form of tech support do they need?" (Gerhardt & Glickman, 2016).

Gerhardt, P.F., & Glickman, A., (2016). Hi-tech visual supports for adolescents and adults with ASD. In M. Cohen & P. Gerhardt (Eds). Visual Supports for People with Autism: A Guide to Parents and Professionals. (pp. 143-153). Bethesda, MD: Woodbine House.

#8 Accept that life is not perfect

- For example, a recent study found that 15% of men and 7% of women didn't wash their hands at a public restroom. When they did wash their hands, only 50% of men used soap, compared with 78% of women. Further, only 5% of people who washed their hands scrubbed long enough to kill germs that can cause infections.
- ☐ In a recent study on casual sex during spring break, researchers found that 15% of men and 13% of women had sex with someone they just met. Further 77% of college-age women and 83% of men reported having had casual sex at least once.
- A recent study found that less than 20% of Americans actually balance their checkbooks... ever. Yet balancing a checkbook continues to be an integral part of our transition curriculum.
- Errors and mistakes happen all the time. The trick is minimize big mistakes while accepting a certain, "non-dangerous" error level. So is competence to be average? Better than average? What? Accept some variability from time to time.

Integrate Instructional Goals Work Skills Secuality Self Care Communication Safety Adolescent Community Skills

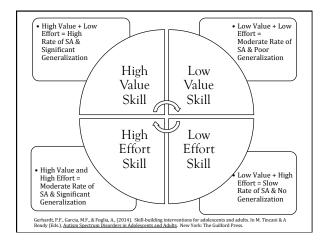
For example

John will be able to safely navigate his work environment allowing him to independently use the restroom, take a break in the staff room, and order/pay for lunch in the cafeteria. If he needs help at any point he will be able to seek out a coworker and ask for assistance using his ACS. Data will be collected on independent initiation of component skills and number/type of prompts necessary to complete the skill. Social validity data will be collected from coworkers on a bi-weekly basis.

#10

We need to pay more attention to matching law and response effort

Matching theory, in its simplest form, states that behavior is distributed in direct proportion to the positive reinforcement inherent on the display of the behavior. And as a general rule the lower the response effort, the lower the sR+ necessary to maintain (and generalize) the response in one's repertoire. Taking both of these into consideration when picking instructional targets may result in behavior change that is more resistant to extinction.



#11 When we have interventions that are evidence-based, they need to be used.

Video Modeling: An EBP

- Video modeling interventions involve having an individual with ASD watch a video of an adult, peer, or him/herself perform a behavior correctly, in hopes that the individual with ASD will begin to spontaneously perform the observed behavior after viewing it on video.
- Video modeling has been used to teach a variety of social, educational, adaptive, and vocational tasks to individuals with autism (Bellini and Akullian 2007) altough only one study (Nikopoulos and Keenan, 2003) has targeted social skills in older individuals

Bellini, S., & Akullian, J. (2007). A meta-analysis of video modeling and video self-modeling interventions for children and adoles- cents with autism spectrum disorders. Exceptional Children, 73, 264–287.

 $Nikopoulos, C., \& \ Keenan, M. \ (2003). \ Promoting social imitation in children with autism using video modeling. \ Behavioral Inter-ventions, 18, 87–108.$

Social Stories or Scripts: Not so much

Social Stories, popularized by Carol Gray, consist of brief stories or scripts describing a particular social, behavioral, or problem solving skill. Though popular, the research into the effectiveness of Social Stories is, at best, mixed. One possible explanation is that there may be two different groups of individuals (i.e., responders v. non-responders) but, beyond a certain level of language comprehension, the characteristics of each group are undefined.

Peer Mediated Social Interventions: Possibly EBP

A small number of studies have found that peermediated interventions, can be effective at increasing social interactions of individuals with ASD (Chan et al, 2009). Peer mediated interventions are those in which typically developing peers are taught strategies for interacting with individuals with ASD. Peer-mediated strategies are meant to capitalize on the existing social skills of typical peers and to serve as models of appropriate social behavior. (Chan et al. 2009).

Chan, J., Lang, R., Rispoli, M., O'Reilly, M., Sigafoos, J., & Cole, H. (2009). Use of peer-mediated interventions in the treatment of autism spectrum disorders: A systematic review. Research in Autism Spectrum Disorders, 3, 876–889.

Social Skill Groups: Not so much

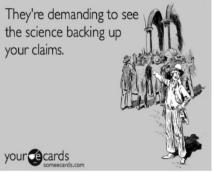
☐ Social Skill Groups, while commonly used with high verbal individuals, lack an adequate research based. Among the myriad questions are what constitutes a social skills group, what curriculum is used, what social behaviors are targeted, how frequently should sessions be run and, how many sessions are needed to produce behavior change.

Self Monitoring/Management: An EBP

Self-management strategies are intended to teach individuals with ASD to independently regulate their own behaviors and act appropriately in a variety of home, school, and community-based situations. Considered an evidence-based practice, the critical elements of self-management include goal setting, monitoring behavior, evaluating progress and self reinforcement.

POINT 12

So Is Behavior Analysis Meeting its Obligation to Adults with ASD?



In the end it depends on which data you use to answer the question

- ☐ The answer is YES if the desired outcome measure is:
 - $\hfill \Box$ High degree of treatment integrity with school-age children with ASD in classroom or clinic settings.
 - ☐ High levels of individual skill within the confines of a classroom or clinic for school-age children with ASD.
 - ☐ High numbers of new BCBAs entering the field to work with school-aged children with ASD.
 - Increased number of ABA journal articles and books published on an annual basis.
 - ☐ The growing number of states with insurance legislation intend to provide funding for behavior analytic services for, generally, school-aged children with ASD.

The answer is NO if we consider this data set:

- □ A quality ABA-based education can cost over \$100K/year or upwards of \$1.8 million by the time of graduation. If at that point, the graduate with ASD:
 - Continues to require direct intervention in the areas of showering, toileting, dressing, eating, etc.
 - Has no, or minimal, repertoire of independent community skills
 - ☐ Has no, or minimal, repertoire of functionally relevant leisure skills
 - Continues to require someone other than themselves to schedule activities and deliver reinforcement
 - Can name all 50 States, has 300 sight words, and can identify coins by value but will leave the environment with a stranger.

Or more broadly...



Student A

Quality ABAbased education for 18 years at \$1.8M

If following graduation both these individuals end up in the same adult Day Program, what have we accomplished (at least relative to costs)?

Student B

Public school ASD education for 18 years at \$600K



12

And the answer is NO if we look at more global outcome data:

As a result of analyzing data from the NLTS-2 it is clear that "young adults with autism have a difficult time following high school for almost any outcome you choose - working, continuing school, living independently, socializing and participating in the community, and staying healthy and safe. To complicate matters, many of these youth begin their journey into adulthood by stepping off a services cliff. Access to needed supports and services drops off dramatically after high school – with too many having no help at ." Roux, et al, 2015, p. 8

Roux, AM, Shattuck, P, Rast, JE. Rava, JA, & Anderson, KA. (2015) National Autism Indicators Report: Transition into Young Adulthood. Philadelphia, PA: Life Course Outcomes Research Program, A.J. Drexel Autism Institute, Drexel University

Why? One reason is that a problem identified in 1983 is still a problem today

"A major difficulty confronting those interested in adolescents and adults with autism is a lack of empirical data."

(Mesibov, 1983, p. 37)

Shattuck, et al (2012)

- Shattuck, et al, (2012) conducted a comprehensive literature review regarding original research on services and interventions aimed at supporting success in work, education, independence, and social participation among adults aged 18 and older with an ASD published between 2000 and 2010.
- They concluded that the evidence base about services for adults with an ASD is underdeveloped and can be considered a field of inquiry that is relatively unformed.

Shattuck, P., et al., (2012). Services for adults with autism spectrum disorders. Canadian Journal of Psychiatry, 57, 284-291. What we need to do is restate our working definition of "good outcomes" to be much bigger and much more relevant to adult life. For example...

Proposed Outcomes of a High Quality ABA-based ASD Educational Intervention. Students graduate:

- Not just employable but employed a minimum of 20 hrs/wk;
- Not just with social skills but with a social support network centered around where they live, work, and recreate:
- □ Not just with the ability to follow directions but with the ability to initiate actions on their own, and;
- Not just under our stimulus control but under the stimulus control of the environment and with the ability to manage their own behavior.

Yes, this is a "stretch goal" and a lot of work needs to be done to even approximate such outcomes with the majority of our students/clients. However, behavior analysis is at it's best when our science is used to address stretch goals. For example, in the past we have been told:

- "Kids with autism can't learn, period!" and ABA proved that wrong.
- "Kids with autism can't learn to speak or communicate" we debunked that.
- "Autism is a life long diagnosis no matter what you do." and Lovaas & EIBI proved that wrong.
- People will never consistently wear their safety belts when driving,", but experts in Behavioral Safety thought otherwise.
- "Pigeons can't learn to play ping pong.", and, of course, Skinner proved that wrong.

So to wrap this up Point #13

The Top 10 Reasons Children With Autism Deserve ABA (Walsh, 2011)

Reason 10 Children with autism deserve ABA because there is more scientific evidence demonstrating ABA "works" than there is for any other intervention or treatment

 $Reason\ 9$ Kids with autism deserve ABA because they are human

Reason 8 Children with autism deserve ABA because it will help their parents be the best parents they can be for them

Reason 7 Children with autism deserve ABA because it will help teach them how to sleep through the night and use the bathroom

Reason 6 Individuals with autism deserve ABA because it is the best defense against the tyranny of low expectations

The Top 10 Reasons Children With Autism Deserve ABA (Walsh, 2011)

Reason 5 Children with autism deserve ABA because it can teach them the skills necessary to make friends

Reason 4 Individuals with autism deserve ABA because it enables their parents and teachers to capitalize on their strengths and preferences

Reason 3 Children with autism deserve ABA because it can teach parents how to respond in the moment

Reason 2 Children with autism deserve ABA because some day their parents are going to die

Reason 1 Individuals with autism deserve ABA because it can prepare them to be their own best advocates

Walsh, M.B., (2011). Top 10 Reasons Children with Autism Deserve ABA. Behavior Analysis in Practice, 4, (72-79)

Adults with autism deserve nothing less.



Don't dream it. Be it!

A failure is not always a mistake, it may simply be the best one can do under the circumstances.

The real mistake is to stop trying.

B.F. Skinner
1904-1990

