

Applied Behavior Analysis, Positive Reinforcement and Related Supports for Adults with Autism Spectrum Disorders

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Understanding ABA as an Applied Science

ABA is a field of inquiry dedicated to to investigating and modifying behavior in a systematic way. ABA is:

- Data-based
- Analytical
- Able to be replicated
- Socially important
- Contextual
- Accountable (Sulzer-Azaroff & Mayer, 1991)

Applied Behavior Analysis and Real Life

- A-----B-----C
• I cook ----- My Wife Says "MMM"-----I cook again
- A-----B-----C
• I drink tequila -----I get sick-----No more tequila
- A-----B-----C
• I speed ----- I get a Ticket ----- I drive slower

Why Is ABA Effective For Older Learners with ASD?

- Applied Behavior Analysis is a vast scientific discipline based upon over 35 years of published research.
- Applied Behavior Analysts develop interventions that are based upon empirically validated research and best practices for *both* skill acquisition and behavior reduction.

Why Is ABA Still Effective For Older Learners with ASD?

- ABA....
 - Highlights relevant stimuli
 - Highlights relevant stimuli while simultaneously minimizing extraneous stimuli
 - Recognizes the power of positive reinforcement
 - Functionally determined, Contingent, Continual, Intermittent

Why Is ABA Effective For Older Learners with ASD?

- ABA utilizes systematic prompting and prompt fading
 - Promotes consistency across support staff
 - Provides for data based decision making
- In supporting adolescents and adults, there are times where previously accepted "prompt hierarchies" may have to be modified as a function of community standards
- Behavior Analysts respect the role of significant others in the individual's life as *central* to the implementation of an effective intervention.

Why Is ABA Effective For Older Learners with ASD?

- ABA...
 - through task analysis, breaks complex material into smaller, more teachable units
 - represents a teaching method with tremendous versatility beyond discrete trial instruction
 - Shaping
 - Chaining
 - Fluency-based Strategies
 - Incidental strategies
 - Environmental modifications
 - Peer instruction and support
 - provides *numerous* structured opportunities for learner to acquire and practice a new skill or response in isolation prior to expecting the learner to show discrimination

Necessary, Preferred and Marginal Skills

Task	Necessary: Skills upon which independence may depend	Preferred: Skills that support independence but may not be critical	Marginal: Skills that, while valuable, may be negotiable
<i>Riding Mass Transit</i>	Wait until others get off before you get on	Whenever possible, chose a seat where you are not sitting next to someone	Whenever possible, put a row between you and other passengers
<i>Job Interviewing</i>	Arrive on time, dress appropriately, prepare ahead & make eye contact	Expand upon you answers with examples, advocate on your own behalf,	Engage in small talk.
<i>Using a Urinal in a Public Restroom</i>	Keeping your pants up around your waist, not looking at others at the urinal & wash hands	Picking the correct urinal	Not saying "hello" to someone at the sink

Why Is ABA Effective For Older Learners with ASD?

- Applied Behavior Analysis is a *person-centered* approach.
 - Functional assessments enable identification of the underlying communicative intent of challenging behaviors
 - Functional assessments enable interventionists to respect goals, while helping the individual develop other ways to meet those goals
 - Behavior plans provide individuals with more acceptable tools for negotiating their environment

Characteristics of ABA That Are Often Overlooked

- ABA is both skill acquisition and behavior reduction
- ABA uses both proactive and reactive intervention strategies
- The best treatment outcome are measured in terms of generalization and maintenance in real life environments
- Assessment, support and instruction in ABA is ongoing
- All attempts at skill acquisition and behavior reduction are highly individualized
- By its very definition, reinforcement works!

International Association for Behavior Analysis Special Interest Groups (A Sample)

- Autism
- Behavioral Gerontology
- Behavioral Medicine and Applications
- Gambling
- Crime and Delinquency
- Direct Instruction
- Experimental Analysis of Human Behavior
- Organizational Behavior Management
- Positive Behavior Support
- Rehabilitation and Independent Living
- Speech Pathology and Behavior Analysis
- Verbal Behavior

A Brief Introduction/Review of what Behavior Analysts Mean by the Term "reinforcement"

A Core Consideration

- The power of functionally determined, appropriately and consistently delivered positive reinforce should not be underestimated. Unfortunately, not only is the value of positive reinforcement variable across individuals, time and activities (to name but a few) but most of use are less than fluent in our ability to deliver such reinforcement.

Definition of Reinforcement

- Reinforcement, both positive and negative
 - The contingent addition or removal of a stimulus, the act of which increases the frequency of a behavior

Examples of Negative Reinforcement

- A stimulus is a negative reinforcement (SR-) if its removal, termination, or postponement increases the response that led to its removal, termination, or postponement. Some examples include:
 - Taking a break from work
 - Taking a pain reliever
 - Saying that one understands in order to terminate a long boring presentation on ABA and Problematic Behavior

Identifying Functional Reinforcers

1. Ask the person what works for them
2. Ask the person's significant others what works for them
3. Conduct a structured reinforcement inventory
4. Determine the relative value of different reinforcers

Pace Preference Assessments

- Single stimulus approach based assessment
- Not powerful for producing a rank order
- Is quick to administer
- Cannot assess activities with no corresponding object
- Can be used as a screening tool for other assessments

Pace et al (1985)

Fisher Preference Assessment

- Paired stimulus approach based assessment (forced choice)
- Produces a highly reliable rank order
- Time intensive
- Cannot assess activities with no corresponding object

Fisher et al (1992)

DeLeon Preference Assessment

- Multiple stimulus without replacement approach based assessment
 - Forces the student to choose between an array of stimuli
 - Each time the student chooses, the array decreases by 1
- Produces a less reliable rank order than the Fisher
- Takes less time than the Fisher
- Cannot assess activities with no corresponding object
- The student must scan the array (7 stimuli)

DeLeon & Iwata (1996)

Hagopian Preference Assessment

- Single stimulus engagement based assessment
- Power to differentiate between highly preferred stimuli is limited
- Flexible administration time
- Can assess activities with no corresponding objects like tickling or foot rubs

Hagopian et al (2001)

Rank Order	Student 1	Student 2	Student 3
1	Crackers, Mom singing	Gummy candy, pin toy, swing, nerds, shaving cream	Chips, strawberries, Blues Clues radio
2	Pin toy		Classical music
3	Video	Bumble ball, grocery store ball	
4	Bounce on ball		
5	Catch ball	Koosh ball	Soy nuts
6			
7	Tickles		Shaving cream
8	Trampoline		Grocery store ball, pin toy, foot rub
9			
10			
11			Trampoline
12	Shaving cream	Trampoline	
13			
14			
15			
16			
17			
18			
19			
20	Soy Nuts	Soy Nuts	

A [very] brief discussion of ABA and assessment and intervention with challenging behavior.

There cannot be a crisis next week. My schedule is already full.
Henry Kissinger (1923 -)

Historical Considerations

- Overuse of punishment strategies
- Failure of gains to generalize
- Limited repertoire of options
- Professional/community resistance to “behavior modification” as a field

Specific Deficits That May Predispose Individuals to Engage in Problematic Behavior

- Limited access to reinforcement
- Low tolerance to change
- Difficulties with unstructured time
- Restricted leisure skills repertoire
- Selective attention by support staff
- Confusion
- Difficulties with waiting or delaying R+
- Poor environmental congruence
- Inability to exercise appropriate control over their environment

Fundamental Assumptions of Functional Behavior Assessment

- Behavior has a purpose
- Challenging behavior often is communication
- Challenging behavior often is related to events before and after
- Sometimes challenging behavior serves multiple functions

Functional Behavior Model

Setting Event → Antecedent → Problem Behavior → Maintaining Consequence

Functional Behavior Model

Setting Event → Antecedent → Problem Behavior → Maintaining Consequence

Little sleep Teased Fight Hungry	Demand Least favorite subject Least favorite person	Aggression	Attention Escape Tangible Sensory
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FBA: A continuum of options*...

Low Effort/Precision		High Effort/Precision		
Interviews/ Record review	Teacher recorded observations	Direct observations by others	In Vivo environmental or curricular modifications	Experimental environmental or curricular modifications
Least control/ Most subjective	Little reliability & error rate*, (observer bias) high and confounded by multiple factors	Greater reliability but error rate may remain a factor	Greater reliability but very time intensive	Greatest reliability but may be too staff & time intensive

Source: Sevier County Dept. of Special Education *Our discriminations may be inaccurate

A-B-C Recording

Date	Time	Antecedent	Behavior	Consequence
7/25	1:00p	Bill was asked to clap his hands during music by Sue	Bill bit his own arm	Sue asked Bill what was wrong and tried to calm him
7/25	1:09p	Bill was asked to hit a drum during music by Sue	Bill bit his own arm	Sue again tried to calm him by rubbing his shoulders
7/25	1:55p	Bill was asked to tap his foot during music by Sue	Bill attempted to hit a classmate	Sue blocked the hit and scolded Bill

Issues in Behavioral Intervention With Adolescents & Adults With ASD

- The importance of the appropriate use of positive reinforcement remains significant.
- Function, function, function!
- Why do I think I have to intervene?
- To what extent does the display of the behavior limit his or her life?
- When is a “behavior” an “idiosyncrasy”?
- Control is the issue.

ABA and Leisure Skills

ABA and the functional utility of leisure and recreation skills:

- Leisure and recreation skills, by definition, require choice in terms of activity, location, duration, time, partners & access.
- Without attention to any or all of these factors, what may appear to be leisure activities rapidly become work tasks.

Behavioral Indicators That an Activity Is Leisure Rather Than Work Include:

- The individual independently requests the activity
- The individual consistently chooses the activity over others
- The individual independently initiates or attempts to initiate the activity
- The individual will engage in the activity for a duration longer than that associated with other activities
- There is a reduction in the frequency of problematic behavior during activity
- The individual appears calmer or happier when engaged in the activity.

Behavior analytic interventions to promote a broader leisure repertoire

- Systematic assessment of the reinforcing characteristics of a functional leisure activity.
- Paired presentation of highly reinforcing activities with less highly reinforcing activities.
- Modification of existing interests or activities to be more socially normative.
- The use of shaping, chaining and in some cases, fluency based instruction to provide the skills necessary to engage in a particular activity

A brief discussion of ABA and Sexuality Instruction...

ABA is useful in Sexuality Instruction as it is...

- Data-based
- Analytical
- Able to be replicated
- Socially important
- Contextual
- Accountable (Sulzer-Azaroff & Mayer, 1991)

All of which are directly relevant to the provision of sexuality education and support for learners with ASD.

And...

- despite much discussion about decision making skills in the self-determination literature (e.g., Clark, et al., 2004), there continues to be “lack of evidence [supporting the] effectiveness of sex education and training for persons with developmental disabilities” (Duval, 2002, p. 453) which Behavior Analysis is able to provide.

And lastly...

“...happiness among people with profound multiple disabilities can be defined, reliably observed, and systematically increased” supporting the fact that “the contributions of behavior analysis for enhancing the quality of life among people with profound and multiple disabilities may be increased significantly.”

C. Green & D. Reid, 1996

Challenges Associated with Sexuality Instruction

- The lack of a more operationalized definition of sexuality
- Societal norms restricting the serious discussion of sexuality
- Continued public misperceptions regarding sexuality and learners with ASD and other developmental disabilities
- The social nature of the sexual behavior

ABA and Science v. Pseudoscience...

Science v. Pseudoscience

(Lilienfeld, Lynn & Lohr (2003))

- Pseudoscience is defined by:
 - An overuse of ad hoc hypotheses designed to immunize claims in that contrary evidence is explained away through ad hoc hypothesis (e.g., “They were poorly done studies anyway.”)
 - An absence of self correction in the face of contrary data
 - Evasion of peer review (e.g., workshops, lectures and, in some cases, books and chapters are not submitted for peer review and, therefore, should be understood as such.

Science v. Pseudoscience

(Lilienfeld, Lynn & Lohr (2003))

- Pseudoscience is defined by:
 - Emphasis on confirmation rather than refutation (That is, good science always tries to prove the null hypothesis)
 - A reversed burden of proof. (e.g., It is up to you to prove me wrong rather than me to document efficacy. However, extraordinary claims require extraordinary proof.)
 - An absence of connectivity (e.g., One must “think outside the box” or “accept a new paradigm” to understand the importance of the work.)

Science v. Pseudoscience

(Lilienfeld, Lynn & Lohr (2003))

- Pseudoscience is defined by:
 - An over-reliance on testimonial or anecdotal evidence.
 - An absence of boundary conditions defining those conditions under which an intervention is most likely to work or not work (i.e., This works for everyone under all conditions)

The appeal of pseudoscientific treatments, (Smith, 2005)

- The promise of significant outcomes without out significant effort or, in some (but not all) cases, significant expense.
- Important sounding but vague outcome promises (e.g., increased focus, reduced tactile defensiveness, etc.)
- Congruence with personal theories of intervention (e.g., AIT may be seen as a more “holistic approach” than ABA)

The appeal of pseudoscientific treatments, (Smith, 2005)

- Prevailing anti-science bias in society today
- Long shots do happen every day
- A desire to do something important for our clients resulting in personal satisfaction/validation
- Researchers and practitioners of “good science” simply suck at translating their findings into real world practice.

Controlling for pseudoscience

(Kay & Vyse, 2005)

- Seeing, unfortunately, is not believing and that is why we need data, data, and more data so that time, resources and hopes are not poorly utilized.
 - Define the target of the proposed intervention
 - Develop decision rules
 - Collect some baseline data (videotape)
 - Implement the intervention
 - Collect more data
 - Evaluate objectively

A brief discussion of ABA and family support

Acknowledgements

- Portions of this segment were originally developed by Peter Gerhardt, Kathy Mannion and Megan Matassa and were presented at the 2002 Conference for the Association for Behavior Analysis

Autism or....

- The 8 elements were then synthesized to form the following synthetic structural definition: Caring for a family member living at home with [?] was experienced as "being immersed in caregiving; enduring stress and frustration; suffering through the losses; integrating [?] into our lives and preserving integrity; gathering support, moving with continuous change; and finding meaning and joy". (PsycINFO Database Record (c) 2002 APA, all rights reserved)

The authors (Butcher, Holkup, & Buckwater, 2001) of the previous quote were, in fact, speaking about the support needs of the family members of adults with Alzheimer's Disorder. But the statement could quite easily have been made about family support needs in autism. The difference being that the experience of having autism in the family represents a lifetime of support needs.

The Relationship Between ABA and Family Support

ABA is a field of inquiry dedicated to investigating and modifying behavior in a systematic way (Sulzer-Azaroff & Mayer, 1991).

ABA is:

- Data-based (and we need to assess the efficacy of parent support systems)
- Analytical (based upon individually determined assessments, parent support systems need to address not just the "what", but the "why")
- Able to be replicated (parent support systems should not be "one-hit-wonders")
- Socially important (the relationship is self-evident)
- Contextual – (parent support systems need to work within the context defined by the family)
- Accountable (to the family, the support provider and funding organization)

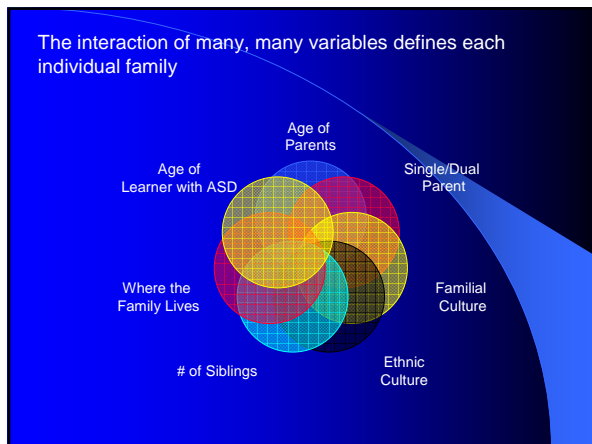
The scope of the challenge

- There are an estimated 500,000 to 1,000,000 (ASA, 2002) individuals living with autism in the US
- From this, an assumption can be made that there are somewhere between 2-6 million immediate family members of people with autism and innumerable extended family members living with or around them.

The scope of the challenge

Further complicating the question is not just the recognized diversity in expression that is autism, but in the sometimes overlooked diversity in:

- families in general;
- individual family members in particular, and;
- the impact of autism on family members at different times in the family life cycle.



The scope of the challenge

- It then becomes increasingly clear that effective models of family support need to be first, available, and then individualized, flexible, and relevant to the needs of families at a given point in time. In other words, family support models need to be based on a functional analytic perspective of family needs across the life span (Cutler & Kozloff, 1987).

Defining Support...

- From a behavior analytic perspective, the term support needs to be viewed in the same functional manner as are the terms reinforcement or punishment. Just as stimuli associated with these terms are defined solely by their impact (increase or decrease) on a behavior, parent support interventions need to be defined solely by their impact on parental stress and adaptation. In other words, what is support to one may be stress to another.

Expected Outcomes of Functional Family Support

- Family functioning is less disrupted
- Aids in the preservation of more intact families
- Educational benefits accrue to the child with ASD
- Reductions in the use of crisis models of support
- Potential long-term cost savings

Areas of (Functional Behavior) Assessment in Family Support*

- The Family
 - Either formally or informally, the family as a unit as well as individual family members need to be polled as to support needs at different points in time
- The System
 - A determination of what supports, both formal and informal, are available

*Adapted from Koenig, R. & Koegel, L. (1997). *Teaching Children with Autism*. Paul H. Brookes Publishing: Baltimore

Areas of (Functional Behavior) Assessment in Family Support

- System/Family Match
 - An assessment, with input from the family, as to the relevance of existing and available support services to their immediate, short term and long term needs, needs to be made
- Determining Support Criteria
 - What actually constitutes appropriate support in terms of service type, frequency, personnel, and duration needs to be determined

Areas of (Functional Behavior) Assessment in Family Support

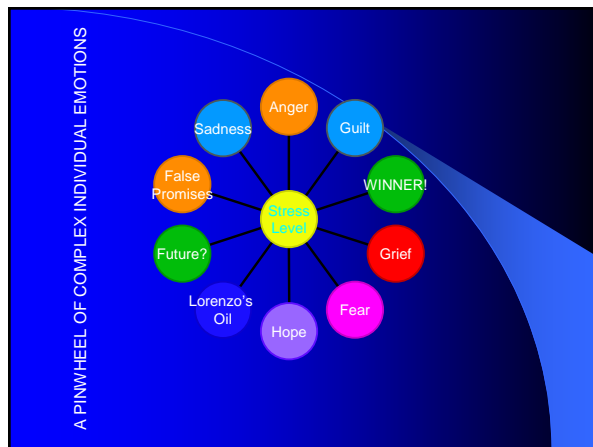
- Follow-up and Efficacy -- Consumer Satisfaction
 - An assessment as to how well the support services delivered actually have provided support needs to be completed... and then completed again... and then completed again... and so on... determined on an ongoing basis.

Family Adaptation to the Birth of a Child with a Significant Disability or; “This Ain’t no Simple Stage Theory”

While parents of children with ASD may go through many complex emotional stages, they do not do so in any consistently predictable fashion (Hallahan & Kauffman, 2000).

No simple stage theory...

Further, in a true stage there is an end point where adaptation and stress is minimized. For many families of children with ASD, adaptation can be transient and impacted by myriad external factors (e.g. sibling milestones, school transitions, changes in employment status, etc.)



A few (controllable) sources of professional induced stress

- Failure to recognize that parents of learners with autism are increasingly becoming the most well-read segment of our service system, often times outstripping staff in terms of general knowledge
- Failure to recognize families as partners

A few (controllable) sources of professional induced stress

- Failure to recognize that, as a rule, all families participate in their child’s education to the fullest extent possible
- Failure to regularly schedule meetings that do not conflict with other family obligations (e.g. work, sibling activities, etc.)

A few (controllable) sources of professional induced stress

- Failure to provide effective or appropriate channels of communication and/or feedback
- Failure to provide appropriate or effective educational or related programs
- “Fill in the _____”

Other Simple, but Potentially Helpful, School- Related Family Support Strategies

- Recognizing families as both knowledgeable and valuable partners and resources
- The provision of open door policies (access)
- The availability of hands on training and instructional sessions
- The provision of family directed school/home consultation services

Other Potentially Useful, School-Related Family Support Strategies

- The development of an open and consistent system of information sharing
- Recognizing the standard of the “n of one” to which many, if not all, families adhere
- Learn to listen. Sometimes a discussion of the problem is all that is really needed.

Other Potentially Useful, School-Related Family Support Strategies

- Design some school-related social activities that include the entire family
- Understanding the inter-relationship among choice, control and competence in lives of individuals and of families

and...

A special note to program support staff...

- Always remember that you do this for a living, parents do it because it is their life. You go off shift, they never do.
- While you may be responsible for services for a dozen or more learners, the only concern of most families is their child.
- Families and their children are our customers and deserve to be treated with the utmost respect at all times.

Challenges to Providing Services to Older Learners...

- Discontinuous post-21 services
- Dearth of ABA services to promote employment and community living
- Limited interest on behalf of the behavior analytic community beyond problem behavior
- Staff recruitment, training, supervision and maintenance
- Family resources & life cycle
- Access to adequate medical services
- Potential issues with the criminal justice system & substance abuse issues

What does ABA have to offer Quality of Life Considerations?

Quality of Life is Not a New Concept

Not life, but good life, is to be chiefly valued.

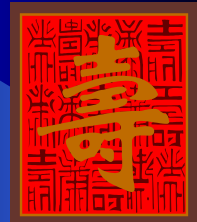
Socrates (469 BC - 399 BC)

QOL as a human right?

All persons enjoy the “right to be left alone, [] the privilege of an individual to plan his own affairs,... to shape his own life as he thinks best, do what he pleases, go where he pleases [] the freedom to walk, stroll or loaf.”

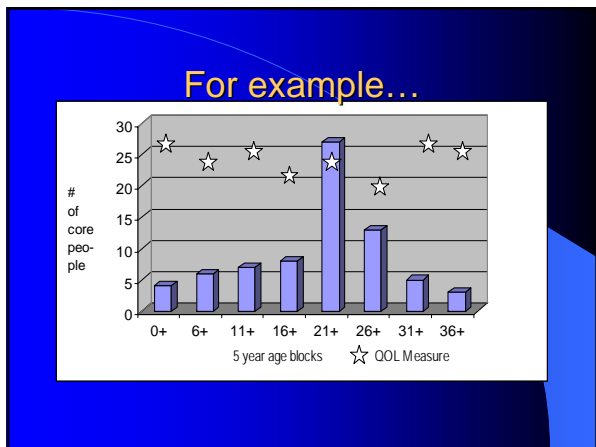
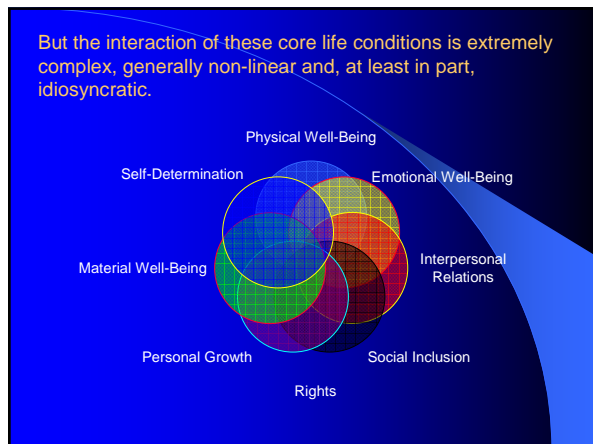
Supreme Court Justice William O. Douglas (1973)

But what is meant by “Quality of Life?”



What does QOL mean? (R. Schalock, 2001)

- Quality of life is a term used to describe a **temporal** condition of *personal satisfaction* with such core life conditions as **physical well-being**, **emotional well-being**, **interpersonal relations**, **social inclusion**, **personal growth**, **material well being**, **self-determination**, and **individual rights**.



We subsequently can operationally defining QOL by what it is by using certain "core indicators" For Example:

Life Condition	Physical Well-Being	Social Inclusion	Material Well-Being	Self-Determination
Physical Health	Physical Health	Community Participation	Finances	Autonomy and Control
Access to Health Care	Access to Health Care	Community Roles	Employment	Choices
Access to Leisure	Access to Leisure	Social Supports	Housing	Person Centered


Schalock, Robert (2001)

Choice, control and competence in QOL...

Choice, Control, and Competence in QOL: CHOICE

- The ability to make uncoerced choices and have those choices honored is integral to one's perception of QOL. From the moment we wake up each day we are presented with choice making opportunities that may impact our lives. Should I hit the snooze? Should I have breakfast? What should I wear today? And so on ... How well we make these choices, and how frequently our choices are, if not granted, at least acknowledged, greatly contributes to our personal sense of well being: our Quality of Life

A World of Choices



- No Cream
- Cream
- Half & Half
- Whole Milk
- 2% Milk
- 1% Milk
- Skim
- Nondairy Regular
- Nondairy Lite
- Nondairy Flavors
- Flavors Lite
- Soy

- No Sweetener
- One Sugar
- Two Sugars
- Sweet & Low
- Nutra Sweet
- Sugar in the Raw

Results in a total of 144 different possible cups of coffee.

Choice, Control, and Competence in QOL: CONTROL

- We all desire some degree of control over our fates. Much of this sense of control we get by making or, at least, participating in decisions that directly impact us. The more control we exhibit over decisions relevant to our lives, the more satisfied we feel as a person and the greater our sense of well being: our Quality of Life.

Choice, Control, and Competence in QOL: COMPETENCE

- The interplay between choice and control is an area called competence. We generally chose to engage in tasks where we have some demonstrated or emerging level of proficiency. We may control the situation along such parameters as how long we work on a task, whether we work in public or in private, or whether we give up on a task all together. The better we are at some personal and public assortment of tasks, the better our sense of well being: our Quality of Life.

What variables are most likely to enhance the QOL of different individuals at different times in their lives?

	Choice	Control	Competence
Childhood	Simple "either/or" choices	Limited	Access to tangibles
Middle School	Development of choice making skills & repertoire	Intermittent	Access to tangibles self scheduling & monitoring
Transition	"Dignity of Failure" becomes issue	Intermittent across multiple settings	Job sampling outcomes, access to tangibles x settings, self sched.
Young Adult	Where to work, live, eat, vote, etc. Risk/Benefit Analysis	Moderate across settings & routines	Job w/ career path, access to tangibles x settings, self sched., desired social life
Adult	Where to work, live, eat, vote, sleep with, etc.	Significant	A life

Some final thoughts on QOL

"...happiness among people with profound multiple disabilities can be defined, reliably observed, and systematically increased" supporting the fact that "the contributions of behavior analysis for enhancing the quality of life among people with profound and multiple disabilities may be increased significantly."

C. Green & D. Reid, 1996

But what is happiness except the simple harmony between a man and the life he leads.

Albert Camus (1913 - 1960)

That's the difference between me and the rest of the world! Happiness isn't good enough for me! I demand euphoria!

Calvin, speaking to Hobbs

If I had to live my life again, I'd make
the same mistakes, only sooner.

Tallulah Bankhead (1903 - 1968)

Felix: "Oscar, you know that's not
good for you!"

Oscar: "When I look back on the best
times on my life, none of them were
good for me!"

**Felix Unger and Oscar Madison
The Odd Couple**

Thank you!