Evolving More Nurturing Societies Through Behavioral Science

Tony Biglan
Senior Scientist
Oregon Research Institute

• Please see:
http://www.huffingtonpost.com/entry/an-evidence-based-strategy-for-bringing-everyonetogether_us_587bad19e4b03e071c14fdf7
“...to build a healthy, happy, and productive world”

“...an energetic, productive, and inventive people”

“...the individual as an energetic and productive member of the group.”

Let men be happy, informed, skillful, well behaved, and productive.

*Freedom and the control of men*
“The scientific foundation has been created for the nation to begin to create a society in which young people arrive at adulthood with the skills, interests, assets, and health habits needed to live healthy, happy, and productive lives in caring relationships with others.”
A Public Health Perspective

DEFINING HUMAN WELBEING
A Public Health Perspective

• Target the incidence and prevalence of disorders in the population
• Suppose we simply started with goal of reducing the incidence of death
• Appropriate targets:
  – Epidemic disease
  – Chronic diseases such as cardiovascular disease, cancer, and diabetes,
  – Violence
  – “Accidents”
• Unhealthful or problematic behavior
• Ultimately the environments that produce these problems
Relative Risk of Problem Behaviors -- Representative Sample of 8th Graders

<table>
<thead>
<tr>
<th></th>
<th>Substance Use</th>
<th>Antisocial Behavior</th>
<th>Risky Sexual behavior</th>
<th>Depression</th>
<th>Eating Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance use</td>
<td></td>
<td>5.52</td>
<td>8.54</td>
<td>3.66</td>
<td>2.29</td>
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<tr>
<td>Antisocial Behavior</td>
<td>5.42</td>
<td></td>
<td>7.80</td>
<td>3.74</td>
<td>2.62</td>
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<tr>
<td>Risky Sexual Behavior</td>
<td>6.86</td>
<td>7.11</td>
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<td>4.46</td>
<td>3.08</td>
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<tr>
<td>Depression</td>
<td>3.93</td>
<td>3.85</td>
<td>5.79</td>
<td></td>
<td>3.64</td>
</tr>
<tr>
<td>Eating disorder</td>
<td>2.45</td>
<td>2.89</td>
<td>3.59</td>
<td>4.00</td>
<td></td>
</tr>
</tbody>
</table>

Coercion

• The ideal of behaviorism is to eliminate coercion: to apply controls by changing the environment in such a way as to reinforce the kind of behavior that benefits everyone.
Coercion: The fundamental process underpinning human conflict

- Negative reinforcement of aversive behavior
- Involved in the development of aggressive social behavior
- Involved in marital discord
- Involved in the interactions of depressed people and their families.
- Intergroup conflict
Threat Rewires the Brain for Evolutionary Reasons

- Genetic, epigenetic, neuroscience, and behavior analysis are converging to show that stressful and threatening environments result in
  - Impaired self-regulation,
  - Hyper vigilance
  - Mistrust of others,
  - Poor social relationships,
  - Deviant peer group formation
  - Early childrearing
  - Depression
  - Obesity
  - Cardiovascular disease

- This pattern of behavior further increases the chances of stress and further physiological harm. (Miller, Chen, Fok, et al., 2009).
Effect of Maltreatment and Poverty on Health

• Meta-analysis of 24 studies
  – Adults with a history of maltreatment were 2.77 times more likely to have stroke or myocardial infarction.

• Poverty in childhood leads to adults having
  – A 20%–40% Increased risk of all-cause mortality:
  – Excess risk of 30-60% for CVD across studies
  – Effects even among those who have increased their SES as adults; 20-40% range for CVD
  – Maternal nurturance prevents these effects!
The physiological stress response
Two Developmental Pathways

Nurturing Environments

Good self-regulation
- Language
- Social skill
  - Academic success
  - Prosociality
  - Friendship formation
  - Compassion
  - Multiple skills
  - Resilience
  - Values oriented

Non-nurturing Environments

Poor self-regulation
- Aggressive, uncooperative behavior
  - Academic failure
  - Peer rejection
  - Deviant peer group formation
  - Early childbearing
  - Drug abuse
  - Depression
  - Antisocial behavior
  - CVD

Values oriented
- Multiple skills
- Resilience
- Compassion

The Nurture Effect
In sum,

• If we simply start with the goal of a long and reasonably healthy life for every person, we soon realize that we need to increase the prevalence of environments that nurture prosocial development—not just of given individuals but of groups.

• And to do that we need to evolve more nurturing environments.
PREVENTIVE INTERVENTIONS FOR FAMILIES AND SCHOOLS
<table>
<thead>
<tr>
<th>Program</th>
<th>Developmental Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse Family Partnership(^1)</td>
<td>Prenatal through infancy</td>
</tr>
<tr>
<td>Healthy Start(^2)</td>
<td>Prenatal through infancy</td>
</tr>
<tr>
<td>Family Check-Up(^3-8)</td>
<td>Early childhood through early adolescence</td>
</tr>
<tr>
<td>Parent Management Training Oregon(^9)</td>
<td>Childhood</td>
</tr>
<tr>
<td>Incredible Years(^10-11)</td>
<td>Early childhood through childhood</td>
</tr>
<tr>
<td>Multisystemic Therapy(^12)</td>
<td>Adolescence</td>
</tr>
<tr>
<td>Multidimensional Foster Family Care(^13)</td>
<td>Early childhood and adolescence</td>
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</table>
Features of Interventions That Nurture Healthy and Productive Development

• Reduce coercion
• Replace it with a lot of positive reinforcement for diverse forms of prosocial behavior
• Limit opportunities and influences for problem behavior
• Promote psychological flexibility—the pragmatic and resilient pursuit of one’s goals and values.
Nurse-Family Partnership

- Pregnancy through infancy
- Focus on
  - Life Planning
  - Prenatal care
  - Maternal smoking
  - Mothering
  - Contraception
  - Work life
Nurse-Family Partnership

• Evaluated in three randomized trials for poor, teenage, single mothers

• Significant effects on
  – Abuse and neglect
  – Children’s behavioral development
  – Mother’s economic wellbeing
  – Time to next baby
  – Children’s arrests as adolescents
Adjusted rates of arrests, 15-year olds, Elmira

\[ P_{C-NP \& C-NPI} = 0.005 \]
Parent Management Training—Oregon Model

• Behavioral parenting skills program that grew out of Patterson’s early work on teaching parents to use reinforcement and his observations of the coercive process.
  – Parents, not therapists, serve as the treatment agents;
  – Parents learn to track and record behavior; and
  – Parents learn to replace coercion with positive reinforcement and consistent mild sanctions to discourage problem behavior.

• Randomized trials evaluating PMTO have been conducted by the developer and by countries and states that have adopted PMTO.

• PMTO reliably reduces coercive processes in families and children’s aggressive social behavior.
## Programs

- e-Circle Professional Development for Preschool Providers\textsuperscript{15}
- Providing Alternative Thinking Strategies/PATHS\textsuperscript{16}
- Positive Behavior Intervention and Support\textsuperscript{17-18}
- Positive Action\textsuperscript{19}
- Seattle Social Development Program\textsuperscript{20}
The Good Behavior Game

- Classroom teams in elementary school earn small rewards for being on-task and cooperative
Timeline of benefits

First Month
- More time for teaching and learning
- Less stress for staff and students

First Year
- Better attendance
- Fewer referrals
- Fewer service needs
- Less illness
- Happier families
- Less vandalism
- Better academics

Two-three years
- ADHD averted
- Oppositional Defiance averted
- Special education averted

5-15 years
- No tobacco
- Less alcohol
- Fewer conduct disorders
- Less depression
- Less crime, violence, suicide
- High school graduation & university
Acceptance and Commitment Therapy

- More than 150 randomized trials showing its impact on a wide range of problems of human behavior.
Problems Affected by Acceptance and Commitment Therapy

- Anxiety
- Depression
- Smoking
- Epilepsy
- Drug abuse
- Exercise
- Weight Loss
- Pain

- Hallucinations
- Prejudice
- Trichotillomania
- Obsessive thinking
- Stigma
- Stress
- Innovation
The Behavior Analytic Roots of Our Progress

• Virtually all of these evidence-based prevention and treatment interventions, which prevent multiple problems are derived from behavior-analytic principles and research.

• And those that aren’t either
  – Can be explained in terms of those principles
  – Or point to gaps in the behavior analytic conception of human behavior.
Parent Management Training Oregon

- Jerry Patterson’s discussions with Bijou and Baer
- Systematic use of positive reinforcement
- Analysis of negative reinforcement involved in coercion in families with aggressive children
- Other family interventions that grew out of this work
  - Family Check-up
  - Multi-Dimensional Treatment Foster Care
  - Incredible Years
NURSE FAMILY PARTNERSHIP FROM A BEHAVIOR ANALYTIC PERSPECTIVE
BACB Task List of Specific Behavior-Change Procedures

- E-01 Use interventions based on manipulation of antecedents, such as motivating operations and discriminative stimuli.
- E-02 Use discrimination training procedures.
- E-03 Use instructions and rules.
- E-04 Use contingency contracting (i.e., behavioral contracts).
- E-05 Use independent, interdependent, and dependent group contingencies.
- E-06 Use stimulus equivalence procedures.
- E-07 Plan for behavioral contrast effects.
- E-08 Use the matching law and recognize factors influencing choice.
- E-09 Arrange high-probability request sequences.
- E-10 Use the Premack principle.
- E-11 Use pairing procedures to establish new conditioned reinforcers and punishers.
- E-12 Use errorless learning procedures.
- E-13 Use matching-to-sample procedures.
Nurse Family Partnership from a Behavior Analytic Perspective

• Which of its features can be related to BA procedures?
  - Life Planning?
  - Prenatal care?
  - Maternal smoking?
  - Mothering
  - Contraception
  - Work life

• But would a behavior analysts have thought up this program?
Evidence-Based Kernels

- Smallest unit of behavioral influence
- Indivisible—removing any part makes it inactive
- Produces quick, easily measured change
- Can be used alone or with other kernels
- Active ingredients of evidence based programs
- Most were developed by behavior analysts.
Kernels in the PAX Good Behavior Game System

- PAX Vision
- I’m a PAX Leader
- PAX Quiet
- Granny’s Wacky Prizes
- Beat the Timer
- PAX Stix
- PAX Tootle Notes
- PAX Voices
- PAX Hands and Feet
- OK/Not Ok
Some Assertions About Behavior Analysis and Behavioral Science More Generally

• It is not widely understood among behavioral scientists, but most of the effective family, school, and community interventions are rooted in the analysis of behavior.

• Yet apparently because they are not explicitly seen as behavior analytic, we are not making use of them.

• Many behavior analysts are frustrated by
  – The lack of recognition of this fact.
  – The limited involvement of contemporary behavior analysis in many of the most important problems in society
    • Education
    • Poverty
    • Economic inequality
    • Drug addiction
    • Family instability
    • Academic failure
    • Climate change
Some Assertions About Behavior Analysis and Behavioral Science More Generally

• The certification process, while establishing BA’s dominance in the field of development disabilities, has not encouraged behavior analysts to
  – Study and make use of tested and effective interventions that are not explicitly labeled as behavior analytic.
  – Make use of a wide variety of experimental and statistical methods that are quite useful in identifying effect methods of influencing behavior. For example:
    • Experience sampling
    • Individual growth curves

• Skinner himself said:
  – "The study of human behavior is, of course, still in its infancy, and it would be rash to suppose that anyone can foresee the structure of a well-developed and successful science. Certainly no current formulation will seem right fifty years hence."
  http://psycnet.apa.org/books/11324/015
Some Assertions About Behavior Analysis and Behavioral Science More Generally

- Evolving a more flexible approach to behavior analysis would increase its impact on many other problems at the same time that it expanded career opportunities for people trained in behavior analysis.

- The contextualist thinking that is at the heart of behavior analysis is as relevant to the selection of cultural practices as it is to behavior (Wilson, Hayes, Biglan, and Embry, 2015).
Expanding the Repertoire of Behavior Analysts—as Individuals and as a Field

- Philosophy
- Goals
- Methods
- The analysis of verbal behavior
- The economic and societal success of the field
Philosophy

• Mechanism vs. Pragmatism?

• Skinner on pragmatism
  – What was the key insight in “The Generic Nature of Stimulus and Response?
    • Rather than a mechanistic analysis of behavior in terms of its physical dimensions, stimuli and responses could be grouped as similar or different based on their functional relations
    • Why? Because it worked to organize them in this way.
    • Functional response classes
Philosophy

• Moxley’s analysis of Skinner’s pragmatic selectionism in “The Operational Analysis of Psychological Terms.”
• For Functional Contextualism, the goal is prediction and influence. (See Biglan & Hayes, 2016)
• The same contextual analysis is relevant to the selection of cultural practices.
Philosophy

- The pragmatic view of behavior analysis invites us to be quite flexible in adopting whatever works to achieve our goals.
- It is a philosophy that can function in science and in our personal lives.
Goals?

• My proposal is the whole of human wellbeing
• I think this was Skinner’s goal as well.
• Operationally defined by public health in terms of the incidence and prevalence of disorders and wellbeing.
• By these goals we can evaluate Behavior Analysis in terms of progress in increasing the prevalence of wellbeing, which depends on:
  – Increasing the prevalence of nurturing environments via programs that replace coercion with positive reinforcement and policies that reduce poverty, in equality and discrimination.
Methods

• Randomized Trials are a lousy way to understand functional relations.
• However, they are very useful for assessing the generalizability of the influence of a variable on behavior.
• And they have become a standard for assessing the efficacy and effectiveness of interventions.
The Analysis of Verbal Behavior

• A man walked into a bar...
• Rule governed behavior
• Relating as a generalized operant.
  – The relations among objects, vocalized words, pictures, and written word.
  – Arbitrarily applicable
• A horse is a verbal stimulus to the extent that it participates in relational frames with other stimuli
• Relational networks in Pax Vision, Pax Leader, the Nurse-Family Partnership.
The Consequences Involved in the Practices of Behavior Analysis

• Social contingencies and relational networks support the development of BA skills
• Jobs!
• Certification
• To the extent that training is geared to passing the certification test, the repertoire of new behavior analysts will be restricted.
  – Training in any of the evidence-based family or school interventions?
  – Skill in developing and testing new programs for specific problems?
Some Concrete Possibilities

• Study, teach, and Implement the PAX Good Behavior Game
• Study, teach, and adapt evidence-based family interventions for work with families with children with developmental disabilities.
• Identify any evidence-based principles that are found in these interventions and add them to the behavior analytic repertoire.
The question should not be whether an effective intervention is behavior analytic, but whether or not it works.
There are those that look at things the way they are, and ask why? I dream of things that never were, and ask why not?

“...create a society in which young people arrive at adulthood with the skills, interests, assets, and health habits needed to live healthy, happy, and productive lives in caring relationships with others.”
References


References


References


• http://www.huffingtonpost.com/entry/an-evidence-based-strategy-forbringing-everyone-together_us_587bad19e4b03e071c14fdf7

• A list of essays can be found at http://www.nurtureeffect.com/latest-press/
• Use the dimensions of applied behavior analysis (Baer, Wolf, & Risley, 1968) to evaluate
• whether interventions are behavior analytic in nature.