Simple Tools for Making our Environments More Nurturing

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My Key Message

• We cannot prevent substance use simply by targeting that problem.
• To prevent substance use and substance use disorders, we have to prevent all of the psychological and behavioral problems that are risk factors for substance use.
• And to do that, we need to ensure that our young people live in environments that nurture the development of all of the psychological and behavioral skills that people need to thrive.
And the Good News is that we can do it!

“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.”
The Nurture Consilience

• Diverse disciplines including behavior analysis, biology, medicine, public health, social work, and social, clinical, and developmental psychology converge in identifying the environmental conditions that promote vs. undermine wellbeing.

• I have found it useful to organize the evidence around the concept of nurturance.
Nurturing Environments

• Minimize toxic biological and social conditions
• Limit opportunities and influences for problem behavior
• Richly reinforce diverse forms of prosocial behavior*
• Promote psychological flexibility: the mindful and pragmatic pursuit of one’s values, even in the context of troubling thoughts and feelings.

• *The secret of behavior change is reinforcing alternative behavior, not trying to damp down or punish behavior we don’t want.
Toxic Social Conditions
Adverse Childhood Experiences--ACES

• Physical abuse,
• Verbal abuse,
• Sexual abuse,
• Physical neglect,
• Emotional neglect.
• An alcoholic parent
• Abuse of one’s mother
• Family member in jail,
• Mentally ill family member
• Loss of a parent through divorce, death or abandonment
As the number of ACEs increases so does the risk for the following:

- Alcoholism
- Chronic obstructive pulmonary disease
- Depression
- Fetal death
- Health-related quality of life
- Illicit drug use
- Ischemic heart disease
- Liver disease
- Poor work performance
- Intimate partner violence
- Multiple sexual partners
- Sexually transmitted disease Smoking
- Suicide attempts
- Unintended pregnancies
- Early initiation of smoking
- Early initiation of sexual activity
- Adolescent pregnancy
- Risk for sexual violence
- Poor academic achievement

Source: CDC
Interventions by Developmental Phase

Prior to Conception
- Pregnancy prevention

Prenatal
- Prenatal care
- Home visiting

Infancy

Early Childhood
- Early childhood interventions
- Parenting skills training
- Social and behavioral skills training

Childhood
- Classroom-based curriculum to prevent substance abuse, aggressive behavior, or risky sex
- Prevention of depression

Early Adolescence
- Prevention of schizophrenia

Adolescence

Young Adulthood
- Prevention focused on specific family adversities (Bereavement, divorce, parental psychopathology, parental substance use, parental incarceration)

Policy
- Community interventions
## Evidence-Based Family Interventions through the Lifespan

Leslie et al., 2016

<table>
<thead>
<tr>
<th>Program (Target age)</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Foundations (0-2)</td>
<td>Antisocial-aggressive Behavior, Anxiety, Conduct Problems, Depression, Externalizing, Internalizing, Prosocial with Peers</td>
</tr>
<tr>
<td>Family Check-up (Toddler Version; 0-2)</td>
<td>Conduct Problems, Externalizing, Internalizing, Reciprocal Parent-Child Warmth</td>
</tr>
<tr>
<td>Triple P System (0-11)</td>
<td>Child Maltreatment, Mental Health – Other</td>
</tr>
<tr>
<td>Parent-Child Interaction Therapy (PCIT; 3-11)</td>
<td>Antisocial-aggressive Behavior, Child Maltreatment, Conduct Problems</td>
</tr>
<tr>
<td>New Beginnings (For children of divorce; 5-18)</td>
<td>Antisocial-aggressive Behavior, Close Relationships with Parents, Externalizing, Internalizing, Mental Health - Other, Reciprocal Parent-Child Warmth, Sexual Risk Behaviors</td>
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<tr>
<td>Strong African American Families Program (5-11)</td>
<td>Alcohol, Close Relationships with Parents, Delinquency and Criminal Behavior, Truancy - School Attendance, Prevention of CVD Risk</td>
</tr>
<tr>
<td>Strengthening Families (10-14)</td>
<td>Alcohol, Antisocial-aggressive Behavior, Close Relationships with Parents, Illicit Drug Use, Internalizing, Tobacco</td>
</tr>
<tr>
<td>EFFEKT (12-14)</td>
<td>Alcohol, Delinquency and Criminal Behavior</td>
</tr>
<tr>
<td>Familias Unidas Preventive Intervention (12-18)</td>
<td>Externalizing, Illicit Drug Use, Sexual Risk Behaviors</td>
</tr>
<tr>
<td>Guiding Good Choices (12-14)</td>
<td>Alcohol, Delinquency and Criminal Behavior, Depression, Illicit Drug Use</td>
</tr>
<tr>
<td>Positive Family Support – Family Check-up (12-14)</td>
<td>Alcohol, Depression, Sexual Risk Behaviors, Tobacco, Delinquency</td>
</tr>
<tr>
<td>Functional Family Therapy (FFT; 12-18)</td>
<td>Delinquency and Criminal Behavior, Illicit Drug Use</td>
</tr>
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</table>
Schools

- E-Circle Professional Development for Preschool Providers
- Positive Behavioral Intervention and Support
- Promoting Alternative Thinking Strategies—PATHS
- Positive Action
- The Good Behavior Game
- Cooperative Learning
- Meaningful Roles
Kernels: Going Beyond Programs

• If you look inside programs, you will find that they contain a set of simple behavior-influence techniques.
• Family programs are expensive and often more than a family needs.
• School curricula on substance use are often resisted by schools because the take time away from academic subjects.
• Kernels are simple, proven behavior influences techniques.
• They are key ingredients in PAX GBG and Pax Tools
• As people become skilled at using them, you have a way to spread nurturance throughout a community.
Paper on Kernels by Embry and Biglan
Full Disclosure

• Although kernels have been well tested in school settings—as key components of the PAX Good Behavior Game--PAX Tools have not been fully evaluated.

• My nonprofit, Values to Action has a contract with the PAXIS Institute to evaluate their impact, when delivered to parents.
A kernel for Reducing Youth Access To Substances
Mean percent of tobacco outlets in eight communities willing to sell tobacco to minors.
Reward and Reminder for Alcohol Sales

(A) Percent Willing to Sell

Before | After
--- | ---
Control | 15
Intervention | 5

0 | 10 | 20 | 30 | 40
Action Circles

- Small groups of people who come together to work on one well-defined slice of a bigger problem.
  - Reading proficiency
  - Juvenile Justice Reform
  - Getting behaviorally skilled personnel in health care settings
  - Reducing Greenhouse Gas emissions.
- Values to Action can help your community address any of these problems.
- An action circle can help your community spread kernels.
- Go to [https://www.valuestoaction.org/](https://www.valuestoaction.org/) to learn more
Summary

• You may have been told that your job is just to prevent substance use.
• But whether your funders know it or not, they will not get what they want, unless you help your communities come together around a clear goal of preventing the entire range of psychological and behavioral problems of young people.
• Focus on creating social environments in families, schools, and communities in which each person feels accepted and cared for.
• A community whose members become adept at using kernels can help to nurture the wellbeing of everyone.
• And hey, in the process, care for yourself!
You can Join Values to Action
Fundamental, practical units for behavior change: Using Evidence-Based Kernel to Better Our World

Dennis Embry, Ph.D., president & senior scientist • dde@paxis.org
What is the building code for human behavior? **Four** types of “kernels” of behavioral influence.

Nature is always compact and consilient…

What makes an evidence-based kernel?

An evidence-base kernel must influence at least one of these outcomes…

- The frequency of behavior,
- The intensity of behavior,
- The duration of behavior, and/or
- Biological brain functions including gene expression.

A kernel is the smallest unit of proven behavioral influence procedure shown in experimental analysis to affect specific behaviors.

A kernel is indivisible in the sense that removing any of its components would render it inert or ineffective.

Evidence-based kernels: Fundamental units of behavioral influence

Dennis D. Embry • Anthony Biglan

This paper presents an analysis of fundamental units of behavioral influence that underlie effective prevention and treatment. We call these units kernels. They have two defining features. First, in experimental analysis, researchers have found them to have a reliable effect on one or more specific behaviors. Second, they are fundamental units of behavioral influence in the sense that deleting any component of a kernel would render it inert. Understanding kernels could contribute to an empirically based theory of behavioral influence, facilitate dissemination of effective prevention and treatment practices, clarify the active ingredients in existing interventions, and contribute to efficiently developing interventions that are more efficient and effective. Subsequent sections of this paper expand on the two essential features of evidence-based kernels, as well as the origins of the idea and terminology.

The ultimate goals of treatment and prevention research are a reduction of the prevalence of the most common and costly problems of behavior and an increase in the prevalence of well-being. Current thinking about how to accomplish this assumes that we will identify empirically supported programs and, to a lesser extent, policies, and will disseminate them widely and effectively. Although substantial progress is occurring through this strategy, there are at least four limitations to it that point to the value of kernels as a complementary strategy.

First, it is difficult to implement a program’s efficacy widely with fidelity or effectiveness. Ringwalt et al. (2003) surveyed a sample of 1,799 school staff members who were in charge of teaching substance-use prevention programs. Nearly one-third reported teaching content that meta-analyses showed was effective. However, only 17% used effective delivery and only 14% used both effective delivery and content. In a second study, Ringwalt et al. (2003) found that about one-fifth of teachers of substance-use prevention programs reported teaching content that was empirically supported but only one-fifth used both effective delivery and content. These data point to the value of kernels as a complementary strategy.

Another limitation is that dissemination efforts often are not coordinated and do not take advantage of existing programs and structures. Researchers have found them to have a reliable effect on one or more specific behaviors. Second, they are fundamental units of behavioral influence in the sense that deleting any component of a kernel would render it inert.

Evidence-based kernels are active ingredients in existing interventions, and contribute to efficiently developing interventions that are more efficient and effective. Subsequent sections of this paper expand on the two essential features of evidence-based kernels, as well as the origins of the idea and terminology.

Keywords Evidence-based kernels • Public-health benefits • Prevention • Treatment
Examples of some of the 52 evidence-based kernels in four “suites”

<table>
<thead>
<tr>
<th>Kernel</th>
<th>Description</th>
<th>Citations</th>
</tr>
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<tbody>
<tr>
<td>Nonverbal (relational) transition cues</td>
<td>Nonverbal visual, kinesthetic, and auditory! cues for transitions stopping one task &amp; starting another! (STOP &amp; GO), changing voice registers, getting quiet to hear instruction that are used school wide.</td>
<td>Abbott et al., 1998 Embry et al., 1996 Krantz &amp; Risley, 1977 Rosenkoetter &amp; Fowler, 1986</td>
</tr>
<tr>
<td>Meaningful roles (jobs)</td>
<td>Providing responsible roles to all children in the classroom, school, or home increases prosocial behaviors, instructional time, and achievement, and provides positive adult and peer reinforcement &amp; recognition.</td>
<td>Kahne &amp; Bailey, 1999 Rutter, 1983</td>
</tr>
</tbody>
</table>

Note: We always cite the first clear cases of first published, experimental studies that are easily found and referenced online. We are aware these kernels are often found among indigenous cultures.
Example Relational Frame, a Proven Evidence-based Kernel

My/Your Heart-felt Goal

1. Why do I/you want to reach this goal?
2. What steps can I/you take to reach this goal?
3. What supports do I/you have to reach this goal?
4. What problems might I/you encounter on the way?
5. What are ways I/you can deal with the problems?

Instruction note: This is best done in pairs. Adults may interview each other, and adult may interview a child or youth.

Instruction note: It is wise to make copies of the Goal Map to share with people who might help support the goal, named in the 3rd box.

NOTE: This process is embedded in the PAX Good Behavior Game and drug treatment.

This works for prevention, intervention, and treatment.

NOTE: This process is embedded in the PAX Good Behavior Game and drug treatment.


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Positive Reinforcement Peer-to-Peer Notes (aka “Tootles”)

Did You Know
Peer-to-peer reinforcement is the active ingredient in reducing the risk of teen & early adult suicide.
Necomer et al, 2015

Such positive peer-to-peer notes also work for prevention, intervention, and treatment.

Number of disruptive behaviors in a third-grade classroom with and without the use of tootling.
The Prize Bowl is a reinforcement kernel.

Source: Petry et al., Journal of Consulting and Clinical Psychology, 2000, 68, 250-257

And the single most proven, and cost effective strategy NIDA has ever funded for early intervention and treatment of series addictions.
Don’t bank on punishment to get to the promised land…
A state did that and lost $$ from the Title 4 Block Grant

If the state had used R&R for the whole state they would not have had a $$ penalty
Evidence-Based Kernels Can Be Delivered in the Context of Public Health and Wellbeing

State Medicaid, state block grants, county agencies, private care, and care systems are using kernels.

Flow Chart for State/Community Level Promotion of Specific Kernels

- Needs Assessment of Behaviors to Increase and Decrease
  - Selection Possible Kernels for Behavior Change
    - By Role
      - Self
      - Parent
      - Teacher
    - By Place
      - Home
      - School
      - Business
      - Etc.

- Recruitment of Sponsors
  - Government agencies
  - Retail & business sponsors
  - PR-type sponsors
  - Charitable Foundations
  - Non-profit organizations
  - Advocacy groups

Public Proclamations & MOUs

- Licensing & Purchasing Agreements
- Selection of Key Outcome Indicators
- Selection of Process Indicators
- Promo Plan
  - TV/Radio
  - Print/Outdoor
  - Internet
  - Other
  - Guerrilla

Mobilization
  - Political
  - Businesses
  - Organizations
  - Family/Faith
  - Advocacy/other

Logistical Planning

- Registration, Web Training & Downloads
- Participation in Kernel-specific Social Network
- Costs and Evaluations by Users
- Browsing of Non-Sponsored Kernels
- Getting of Non-Sponsored Kernels
- Adoption of Non-Sponsored Kernels

PAXIS bulk assembly & distribution systems

Tangible Fulfillment & Shipping to Sites

Customize Use Reports for policy and research (subject to privacy controls)

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Evidence-based kernels are the active ingredients of gold-standard prevention SEL or prevention strategies like the PAX Good Behavior Game…even brain functions and even brain gene expression (i.e., BDNF)*

Hold on to your hats!
The use of ALL ten kernels in elementary school actually causes positive, protective brain gene expression well into adulthood (age 35)—based on our studies at Hopkins.

This is not good news for folks making PSYCH meds—but good news for USA’s future health & wealth.

Evidence-Based Kernels Can Be Widely Disseminated and Used in the Real World.

*(Training & materials are needed for efficiency)*

- Parents / Grandparents / Caregivers / Foster Parents
- Childcare Providers
- Preschool Staff
- After-School Staff
- Coaches
- Faith Based Staff / Volunteers
- Prevention Professionals
- Mental Health Professionals
- Addictions and Recovery staff & volunteers
- Juvenile and Adult Court Personnel
- And young people as active prevention agents

Please Check with [www.paxis.org](http://www.paxis.org) for training events.
Can Kernels Be Deployed for Multiple Level Public-Policy Efforts

Yes, and is happening across multiple states…
Do you have to read every book and journal article to learn about each kernel to make use of evidence-based kernels?

NO!

Thanks for extensive federal and other funding, states and communities can learn HOW TO USE evidence-based kernels quickly and efficiently.
Training & Dissemination Model for PAX GBG and PAX Tools (kernels) can work for Whole Communities…

- PAXIS Trainer
- Who teach community members to mentor others
- Who collaborate with
- Many Caring Adults in Communities
- Who implement & benefit
- Many Children, Teens, and adults in Communities
Multiple states and countries have shown it is possible to reduce mental, emotional & behavior disorders with GBG and/or kernel “recipes.”
Why does every community need simple, practical tools (kernels) to help children, youth, families, schools, businesses, & health services?

...to reduce and flatten a rising epidemic
The US had 75 million children and teens in 2009.

40.4 million kids had one psychotropic med in 2009.

And it keeps rising.

Wall Street Journal, 12-28-2010
The cost of Mental Disorders is increasing $1 billion per year.
What Can We Do to Change Direction?

Provide children with *explicit teaching* of social-emotional and behavioral skills - just like learning tying shoes and math problems.

Behavior is adopted when it is *useful* and *reinforced by adults and peers*.

When teaching new skills, you
- use methods shown to work
- have a backup plan
- exercise patience
- don’t get emotional about mistakes

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Proven Tools Can Create Nurturing Environments

Nurturing Environments are surroundings and conditions that promote resilience, self-regulation, and positive behaviors.

When adults and children co-create Nurturing Environments, adults help offset the predatory environments children may experience elsewhere.
PAX GBG is used by educators in classrooms, schools & after school settings.

All this is happening at a population-level in Ohio, Texas, Arizona, other states as well as other countries with public-health benefits.

PAX GBG both PAX Tools teach self-regulation & wellbeing, using proven evidence-base kernels!

PAX Tools are strategies for parents, caregivers, youth workers, & clinicians, with a free app.

www.paxis.org
Why use the evidence-based recipe for kernels at school, at home, and in the community as a public health approach? Here is why………...
What is the goal for these simple PAX efforts?

To better our world, and better ourselves.

www.paxis.org