US PARTNERSHIP ON MOBILITY FROM POVERTY

Using Brain Science to Transform Human Services and Increase Personal Mobility from Poverty

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ABOUT THE US PARTNERSHIP ON MOBILITY FROM POVERTY

With funding from the Bill & Melinda Gates Foundation, the Urban Institute is supporting the US Partnership on Mobility from Poverty. Led by chair David Ellwood and executive director Nisha Patel, the Partnership consists of 24 leading voices representing academia, practice, the faith community, philanthropy, and the private sector.

The Partnership's definition of mobility has three core principles: economic success, power and autonomy, and being valued in community. Our collective aspiration is that all people achieve a reasonable standard of living with the dignity that comes from having power over their lives and being engaged in and valued by their community.

Contents

Executive Summary

Getting out of poverty has always been tough, but it has become even harder over the past generation. The increasing costs of housing, health care, and child care, coupled with shrinking low-end wages and rising education requirements for family-sustaining jobs, have made today's pathway out of poverty a journey that fewer than one in four people can ever expect to complete.[1]

And being trapped at the bottom has serious consequences. Science tells us that living in poverty significantly raises the likelihood of incarceration, homelessness, becoming a single parent, failing to complete high school, and even dying younger. Science also tells us that poverty and its associated stress affect how our brains develop, including how we analyze problems and achieve goals, and therefore how well we can navigate the many challenges involved with getting ahead. In other words, science has proven that poverty and stress compromise the very same brain-based skills and behaviors most necessary for people to stand a chance of lifting themselves out of it.

This and other new discoveries in brain science are transforming human services delivery and increasing personal mobility from poverty through three progressively comprehensive levels of program intervention that can be used separately or together to increase participant gains:

- **Level I: Environment and Process Improvements Informed by Brain Science.** These strategies focus on leveraging our understanding of how the brain works, especially under stress, to design tools, processes, and environments that support better brain functioning and self-regulation, in turn making it easier for participants to succeed. Examples include environmental design that minimizes distractions and fosters personal control and privacy, and program elements that incorporate prompts, reminders, and other behavioral techniques to encourage positive behaviors.

- **Level II: Case-Management Approaches Enhanced by Brain Science.** These strategies focus on using brain science findings to improve the professional skills of human services staff working with low-income people, so participants may better engage in programs and optimize outcomes. Examples include training staff on techniques such as cognitive behavioral therapy that can help participants override deep-seated negative thoughts, impulses, and behaviors.

- **Level III: Coach-Navigator Interventions Based on Brain Science.** Whereas the goal of level I and II strategies is to improve participants' performance in a given human services program, coach-navigator approaches are designed to support the participant in improving problem solving and goal attainment across the multiple program domains necessary to complete the pathway out of poverty. Over time, level III interventions improve participants' executive functioning to the point that coaching is no longer necessary. Examples include Mobility Mentoring, a coaching model

research has shown to help participants understand how their decisions interconnect and consider longer-term needs over a range of areas critical to long-term economic success, including family stability, health, financial management, education, and employment.

We can use what emerging science is telling us about how poverty affects behavior and decisionmaking to design innovative ways of helping people become truly upwardly mobile. We can revolutionize human services delivery by moving away from strategies in which our highest goals are to create stability and perhaps very modest gains at the bottom and instead design interventions that create pathways to the middle class and beyond.

It's not as implausible as it sounds. The science is rich, it is already being used to redesign the field, many interventions are being scaled, and powerful outcomes are being achieved.

Impact on Three Dimensions of Mobility

The Partnership's definition of mobility has three core principles: economic success, power and autonomy, and being valued in community.

Investment: Programs and practices grounded in brain science can help people develop the decisionmaking skills and behaviors ultimately needed to complete the journey out of poverty. We propose multiple interventions to develop a larger field of human services programs that use brain science–informed approaches: identify and communicate best practices for navigator models, support programs of excellence, and help existing, successful programs expand. More comprehensive approaches hold greater promise for improving personal mobility outcomes. The proposed cost ranges from $1 to $9 million based on activities chosen.

Impact:

- Economic Success: More human services agencies will adopt practices grounded in brain science. Families will see increased employment, higher earnings, and more stable housing. The Career Family Opportunity Program, a high-intensity coach navigator program, showed that over five years, benefits outweighed costs by $8,000 and participants' earnings increased by 72 percent.
- Power and Autonomy: Families served by brain science–informed coach navigator programs will experience better physical and mental health; show increased self-efficacy, sense of control, mastery and autonomy, and grit; and increasingly adopt a growth mindset.
- Being Valued in Community: Participants will have a stronger social network, a greater sense of belonging, and feel greater social standing.

Poverty and Stress Can Challenge Brain Functions Essential for Economic Mobility

Scientific discoveries over the past 20 years have revolutionized our understanding of just how much human development, behavior, and decisionmaking are influenced by environmental factors. Whereas a generation ago many people thought that IQ and personality traits were largely inherited, brain science[2] research now tells us they are better described as reflections of our past and current life experiences.[3] Similarly, this new science tells us that poverty affects human behavior and decisionmaking in profound and predictable ways that often make it harder for those trapped at the bottom of the income scale to get ahead. Stress caused by poverty, trauma, and oppression fundamentally changes how our brains develop and work throughout our lives.

The two brain areas most measurably affected by poverty are the prefrontal cortex, which governs executive functioning, including the ability to focus, resist temptations, analyze problems, and achieve goals, and the limbic brain, which assesses environmental threats and governs "fight or flight" responses. Exposed to enough stress, the prefrontal cortex finds fewer opportunities to practice and therefore build executive function skills, and the limbic brain becomes hypervigilant, constantly ready to respond to perceived threats (box 1).

The impact of stress on brain functioning is something we have all experienced. Everyone has lived through a time when stress overwhelmed his or her ability to think clearly, remember things, or control his or her behavior. What we now know is that the more extreme the causes of stress, the longer it lasts, and the earlier in our childhoods the exposure begins, the more our executive function skills are likely to be affected. Given that poverty, trauma, and discrimination are hotbeds of stress, it's not surprising that these phenomena directly alter people's abilities to succeed in parenting, school, work, and the many other arenas crucial to upward mobility (table 1).

BOX 1

Executive Functions

New science tells us that poverty and the stress, trauma, and oppression that frequently accompany it fundamentally change how human brains develop and work throughout life. These changes affect human behavior and decisionmaking in ways that make it harder for those in poverty to get ahead, including inhibiting optimization of the following executive function skills:

- **Impulse control** (or inhibitory control), the skills used to filter distractions, override impulses, resist temptation, maintain focus, pause and reflect before acting, and maintain persistence in the face of worry or despair.
- **Working memory,** the ability to mentally hold and manipulate information over short periods, simultaneously think of multiple things, temporarily focus on something while retaining something else "in the back of your mind," retain information from one place and connect it to information from another, follow multistep instructions, and temporarily stop doing something and return to it later without confusion or loss of continuity.
- **Mental flexibility** (or cognitive flexibility, mental shifting, or set shifting), the ability to readily switch gears, multitask, adjust plans, reestablish priorities, apply different rules or social skills in different settings, translate between languages, alter strategies based on feedback, and innovate.

Sources: R. Carlock, "EF in Adult Education Programs" (Cambridge, MA: Center on the Developing Child at Harvard University, 2011) and "Executive Functions: A Review of the Literature to Inform Practice and Policy" (Cambridge, MA: Center on the Developing Child, 2011); and Center on the Developing Child at Harvard University, "Building the Brain's 'Air Traffic Control' System: How Early Experiences Shape the Development of Executive Function" (Cambridge, MA: Center on the Developing Child, February 2011).

TABLE 1

Cognitive and Behavioral Challenges Often Experienced by Those with Significant Exposure to Poverty, Trauma, and Social Bias

Managing thoughts, organization, and learning	Including difficulties with any or all of the following:
	Verbal fluency, including auditory learning and following verbal directions
	Maintaining focus and attention (i.e., increased distractibility)
	Optimizing behavior or decisionmaking in highly stimulating environments
	Memory retention, including general retention of information and following multistep instructions
	Organization skills, including keeping track of belongings or tasks
	Following plans or goals through to completion
	Thinking of logical alternatives to a course of action; surfacing choices/options
	Juggling competing priorities and multitasking
	Time management; organizing tasks to meet deadlines
	Weighing future implications of current decisions
	Building mastery through repeated practice or long-term investment in skill building
	Taking tools or information learned in one setting and applying them in another
	Spatial awareness and spatial memory, navigating to new locations using maps or written directions, or reading tables or diagrams
	Managing life changes and changes in rules or expectations

Managing behavior, emotions, and feelings	Including difficulties with any or all of the following:
	Developing and maintaining self-confidence, self-esteem, or agency
	Controlling impulsive behaviors and regulating risk taking
	Delaying gratification
	Controlling responses to perceived threats or anger
	Calming down after dealing with stressful events or perceived threats
	Maintaining a course of action in the face of new stimuli; persisting in the face of worry or despair
	Understanding the behavior and motivations of self and others (i.e., EQ—emotional quotient or social competence)
	Effectively working in partnerships, teams, or groups
	Building, navigating, and using social networks
	Internalizing recommendations; accepting and using feedback or advice

Sources: R. Carlock, "EF in Adult Education Programs" (Cambridge, MA: Center on the Developing Child at Harvard University, 2011), and "Executive Functions: A Review of the Literature to Inform Practice and Policy" (Cambridge, MA: Center on the Developing Child, 2011); D. A. Hackman, M. J. Farah, and M. J. Meaney, "Socioeconomic Status and the Brain: Mechanistic Insights from Human and Animal Research," *Nature Reviews Neuroscience* 11 (2010): 651–59; E. Babcock, "Using Brain Science to Create New Pathways Out of Poverty" (Boston: Crittenton Women's Union, 2014); and M. R. Sapolsky, "The Influence of Social Hierarchy on Primate Health," *Science* (2005): 648–52.

New Brain Science Approaches to Improving Human Services and Personal Mobility Outcomes

Leaders in various service delivery fields are increasingly turning to new discoveries in brain science to improve the effectiveness of economic mobility programs (table 2). Brain science is being applied to service delivery programs on three progressively comprehensive levels:

- **Level I: Environment and Process Improvements Informed by Brain Science**

- **Level II: Case-Management Approaches Enhanced by Brain Science**

- **Level III: Coach-Navigator Interventions Based on Brain Science**

TABLE 2

Framework of Brain Science–Based Human Services and Personal Mobility Programs

	General description of interventions	Cost of interventions	Participants' economic mobility outcomes	Examples of interventions
Level I: Environment and Process Improvements Informed by Brain Science	Interventions that use brain science to improve the design of human services environments, tools, and processes to create stronger program outcomes	$ Usual average costs per participant are extremely low	$ Individual economic mobility gains are usually very small, but impact at scale can be large	BIAS project; ideas42 and behavioral redesign; trauma-informed and human-centered environmental design
Level II: Case-Management Approaches Enhanced by Brain Science	Enhanced case-management approaches that use brain science–informed techniques to improve participants' program engagement, persistence, and completion	$$ Usual costs involve providing staff with additional training	$$ Demonstrated economic mobility gains are usually modest but can be statistically significant	Motivational interviewing; cognitive behavioral therapy; trauma-informed care
Level III: Coach-Navigator Interventions Based on Brain Science	Individual brain science–based coaching or mentoring approaches designed to help participants attain multifaceted mobility gains and ultimately improve executive functioning	$$–$$$ Costs depend on the size of coaching caseloads and the length of intervention	$$–$$$$$ Gains range from modest economic mobility gains to attainment of full economic independence	Building Nebraska Families; Mobility Mentoring

Level I: Environment and Process Improvements Informed by Brain Science

When people first learn about the profound effects stressful environments and life experiences have on how our brains develop and function, they often jump to the conclusion that the only remedy for such effects is to change the brain itself. However, researchers have found that much can be accomplished just by understanding how the brain works, especially under stress, and using this understanding to design tools, processes, and environments that support better brain functioning and self-regulation. Level I strategies leverage these findings to improve program designs and help participants succeed.

Environmental Design

Environmental psychology provides clues as to how environmental design can improve human cognition, behavior, and health outcomes. Within this field, specialty areas such as trauma-informed design and human-centered design provide evidence-based guidelines for how human services environments can decrease stress, improve focus and concentration, promote self-regulation, and increase self-efficacy and well-being. Such design principles have been shown to significantly improve program outcomes and decrease costs in jails, schools, health care clinics, and other human services settings.[4] General design principles highlighted by this research include careful consideration of the following:

- environmental colors related to intended outcomes (e.g., different colors promote calm, focus, and well-being);

- noise management (e.g., sound reduction, privacy protection, and use of ambient sounds from nature or music);

- natural lighting, availability of windows, and use of natural elements such as interior and exterior landscaping in design;

- artwork and decorative elements that promote a sense of inclusion, personal efficacy, calm, or well-being; and

- layout that minimizes distractions, improves ease of service flow, and fosters personal control and privacy, as well as social supports and networking.

Behavioral psychologists also suggest other aspects of physical environment that can enhance program outcomes for participants, especially those under significant stress. These include making sure that programs are easily accessible to participants and that signage and other aspects of logistical design are

easily understood. Behavioral psychologists also emphasize the importance of paying attention to the cues the environment provides about the service relationship. Does the design promote a sense of safety? Does the environment seem to promote an authoritarian viewpoint and dismiss personal autonomy? Does the artwork promote self-esteem and inclusion? Extensive behavioral research suggests that people, especially under stress, are highly influenced by environmental cues that can "prime" certain behaviors. Wall art that depicts people who resemble the program's participants successfully engaged in program-related activities can prompt positive program-related behaviors and increase successful outcomes.[5]

Behaviorally Informed Process Redesign

Research shows that modest behaviorally informed adjustments to program operations and processes can significantly improve participant outcomes. In the final report of the US Department of Health and Human Services, Administration for Children and Families, BIAS (Behavioral Interventions to Advance Self-Sufficiency) project, researchers summarized the most effective behavioral techniques using the acronym **SIMPLER:**

- **Social influence:** encourage participants by referencing peers (e.g., "Other parents have had courts lower their child support by $200 to $500 per month")

- **Implementation prompt:** connect intention to action (e.g., "Remember to bring your proof of address")

- **Making deadlines:** frame a future action as important and urgent, discouraging the tendency to prioritize today's needs over tomorrow's needs (e.g., "All you need to do is come to a food bank office by March 29, 2014")

- **Personalization:** individualize an interaction (e.g., "This notice includes a red list of your DHS clients whose benefits will end on the last day of the month")

- **Loss aversion:** use incentives and language that capitalizes on people's natural preference to avoid losses over acquiring gains (e.g., "By not attending your appointment, you may LOSE up to $2,508 a year in cash benefits")

- **Ease:** automate processes through default settings, simplification, and color coding (e.g., via a tip sheet, "For these forms you need to have: 1. A signature every place that asks for it. 2. A date next to every signature")

- **Reminder:** use prompts to encourage completion of an action, often in the form of a text message or a postcard (e.g., "Your child support payment is due in three days; pay on time to avoid penalties")[6]

In 11 of the 15 randomized controlled trials conducted across the country for the BIAS project, the subtle and modest "nudges" introduced to help improve individual decisionmaking (such as reminders or simplified, personalized letters) had a statistically significant impact on at least one primary outcome of interest. Improvements included increases in payment rates for child support, attendance at scheduled program appointments, subsidy renewals, and engagement in Temporary Assistance for Needy Families (TANF) programs. Although the gains were modest, the costs were extremely low (on average less than $2 per person per month), and the "nudges" improved human services outcomes for tens of thousands of clients.

Other examples of such behavioral redesign include the work of the nonprofit organization ideas42 in improving postsecondary school access and completion. Simple behavioral nudges similar to those cited in the BIAS project increased financial aid form completion at Arizona State University from 29 percent to 50 percent, increased freshman-year retention rates for high-risk students at San Francisco State from 83 percent to 91 percent, and increased average tutoring session attendance at West Kentucky Community and Technical College from 4.99 percent to 6.71 percent.[7]

Level II: Case-Management Approaches Enhanced by Brain Science

Whereas level I strategies seek to improve program environments and processes, level II strategies focus on using brain science findings to improve the professional skills of human services employees working with low-income people. The most well-known and successful of these approaches come out of brain science research on how trauma and stress affect participants' abilities to successfully engage in programs, maintain focus and persistence, and achieve goals. In each approach, staff members are trained to better understand how participants' behavior can be affected by trauma and stress and to apply professional approaches that mitigate the challenges to cognition and self-regulation that poverty creates. Three of the best known approaches, **cognitive behavioral therapy, motivational interviewing, and trauma-informed care**, are described below.

Cognitive Behavioral Therapy

The basis of cognitive behavioral therapy (CBT) is to train the cognitive areas of the brain (primarily the prefrontal cortex) to override deep-seated negative thoughts, impulses, and behaviors generated by the limbic brain. Participants are guided to recognize the negative feelings, thoughts, and/or responses they

may have to environmental cues, then to think about and understand the reasons the responses are occurring, and ultimately to override or control them by consciously reframing negative thoughts and substituting others. In other words, CBT trains the brain to better control the brain.

In medicine, CBT has been thoroughly studied and demonstrated to be as effective as or superior to other medical approaches, including medication, in treating depression and anxiety.[8] In the human services arena, CBT has been proven to prevent post-incarceration recidivism, with meta-analysis showing that CBT on average increases by 150 percent the likelihood of participants remaining out of jail for at least one year.[9] CBT has also been successfully applied to domestic violence, addiction and recovery, and job-training programs to encourage positive behaviors, including mitigating aggressive behavior, maintaining sobriety, improving interpersonal skills, and better controlling negative thoughts about oneself and others (i.e., cognitive restructuring; see box 2). CBT interventions are also available for free online; although the effectiveness is not as great as when CBT services are provided face to face, incremental gains are still positive, and online therapies are endorsed by the National Institutes of Mental Health.[10]

BOX 2

Roca, a Boston, Massachusetts, Anti-recidivism Program for High-Risk Young Men

Roca's intervention model is a cognitive-restructuring, behavioral-change, and skill-development intervention that focuses on high-risk young men in a nonmandated program. Roca's model focuses on 17- to 24-year-old men who are aging out of the juvenile justice or juvenile probation systems with a strong likelihood of reincarceration as an adult, are connected with the adult justice system, or belong to the community being served and have a strong likelihood of incarceration as an adult.

Program results include the following outcomes for those who participate for 24 months:

- 87 percent had no new rearrests during that period,
- 78 percent were successfully placed in unsubsidized employment, and
- 66 percent retained their employment during the fiscal year of measurement.

These outcomes contributed to Roca exceeding its pay for success targets of no new rearrests for at least 80 percent of participants in the program for 24 months and significantly improved upon community norms in which 27 percent of previously incarcerated men were reincarcerated within two years.

Sources: Roca Inc., "Fiscal Year 2016 High Risk Young Men Performance Benchmarks and Outcomes Report" (Chelsea, MA: Roca Inc., 2016); Massachusetts Department of Corrections, *Prison Population Trends 2015*, Publication # 16-84-DOC-01 (Concord: Massachusetts Department of Corrections, 2016).

Motivational Interviewing

Motivational interviewing (MI) dates back to behavioral research starting in the 1930s showing that when participants spoke about their desires to overcome problems in their lives and to achieve important goals, the act of speaking about these things increased the likelihood of achieving them. Michael Miller, a behavioral psychologist from the University of New Mexico, built upon this research and designed the evidence-based approach of guided verbalization of desire to change called motivational interviewing.

Since its development in 1983, MI has been used and evaluated in hundreds of settings. Although outcomes vary, when deployed with appropriate training and fidelity, MI has been shown highly effective at enhancing outcomes in many areas requiring behavior change. These include management of various medical conditions, such as diabetes and hypertension, and addictive behaviors, such as substance abuse, gambling, and smoking. For example, when three clinical trials added MI to existing substance abuse treatment programs, rates of three- to six-month abstinence doubled in comparison to the control.[11]

Motivational interviewing is usually introduced as an enhancement to other programs. It consists of a guided process whereby staff members encourage participants to speak about their current circumstances and the things they would like to do to improve their lives. Staff members encourage participants to speak freely about their reasons for wanting to change, the importance of their desired goals, and the specific ways they would go about making the change. Miller calls this verbalization "change talk," and there is a proven correlation between the amount of time spent on change talk and the likelihood of the participant's success.

Two key elements of MI must be deployed to obtain successful outcomes. The first is trained and empathetic staff members (who can be case managers or other paraprofessionals) able to effectively listen and guide conversation and who can show true unconditional personal regard for the participant. The second is maximizing the amount and quality of change talk generated in the MI process. As with CBT, MI trains participants for enhanced decisionmaking and self-regulation, and it thereby strengthens their ability to follow through and achieve desired goals. The change talk creates an increasingly powerful reminder for participants of the importance of self-control and persistence, which can battle the swamping effects and impulsiveness created by stress. Empathetic staff members guiding the process of participant self-reflection appear to help lower participants' barriers to change in a way that more directive and didactic staff methods do not. Today MI is frequently used as an enhancement to case-management processes in employment, TANF welfare-to-work initiatives, housing stabilization, school-based parental engagement, and criminal justice programs. For example, MI is a core component of Supported Employment/Individual Placement and Support, an evidence-based approach to helping disabled and high-risk people attain and maintain employment. This model has proved to more than double the rates of employment achieved through traditional vocational training programs (58 percent versus 21 percent).[12]

Trauma-Informed Care

Trauma-informed care (TIC) was developed in response to research on the prevalence and impact of traumatic stress on health, cognition, behavior, and even mortality. Diagnostic criteria for trauma were established in the Diagnostic and Statistical Manual of Mental Disorders, and assessment tools were developed beginning in the 1970s.[13] Trauma-specific mental health treatment approaches with strong evidence base were in wide use in the US by the early 2000s and include clinical interventions targeting youth, families, veterans, and refugees.

Studies now estimate that 75 to 93 percent of juvenile offenders, 93 percent of homeless mothers, 83 percent of homeless children, 75 percent of patients in substance abuse treatment programs, and 25 percent of all schoolchildren have had exposure to trauma.[14] Awareness of these and similar findings prompted organizations such as the federal Substance Abuse and Mental Health Services Administration to suggest that human services organizations stop thinking of trauma as something that should be clinically treated upon detection but instead understand trauma as widely experienced. Therefore, all aspects of service delivery should be designed to support trauma-related challenges to participants' cognition, behavior, and health. In other words, human services design should become more trauma informed.

Trauma-informed care can be defined as "a strengths-based framework that is grounded in an understanding of and responsiveness to the impact of trauma, that emphasizes physical, psychological, and emotional safety for both providers and survivors, and that creates opportunities for survivors to rebuild a sense of control and empowerment."[15] According to the Substance Abuse and Mental Health Services Administration, the following six core principles are the basis of TIC:

1. **Safety:** All service environments and interpersonal interactions should promote a sense of safety for both the participants and staff.

2. **Trustworthiness and transparency:** Organization operations and decisionmaking must be done in a way that is open, honest, and builds trust with participants and staff.

3. **Peer support:** Programs should be designed in a way that enhances opportunities for those with lived experience of overcoming challenges to help others experiencing them.

4. **Collaboration and mutuality:** The organization should deploy services in a way that partners with and levels the power disparities often existing between staff and participants. It should also recognize that all staff members within an organization have a role to play in supporting participants' success.

5. **Empowerment, voice, and choice:** The organization recognizes the inherent strength and worth of all participants and promotes strength-based approaches to service delivery that foster individual personal control, agency, decisionmaking, and self-advocacy.

6. **Cultural, historical, and gender issues:** Services are provided in a way that recognizes the inherent traumatic impacts of stereotypes and biases and actively seeks to mitigate such impacts in all aspects of service delivery.[16]

Although still relatively new as an approach in human services programs serving low-income and high-risk populations, TIC design principles are becoming more widespread, and certifying bodies are now creating strong standards of practice and evaluation. The public arenas in which TIC is most commonly used include medical and mental health services, the Veterans Health Administration, criminal justice, child welfare services, educational settings, and homelessness interventions. Evidence of effectiveness of TIC shows that when used in conjunction with other treatment approaches, TIC can improve mental health and substance abuse outcomes and decrease adverse incidents in residential settings.[17]

Evidence of effectiveness in preventing homelessness is also building, and the National Child Trauma Stress Network has referred to the ARC (Attachment, Self-regulation, and Competency) and CARE (Child-Adult Relationship Enhancement) models of TIC in homeless settings as "promising practices." There is strong demand from both providers and consumers for TIC in supporting homeless families. Surveys of homelessness service providers and consumers show that the reasons for wanting TIC include that providers feel they need to be better informed about trauma and violence; consumers want services that are empowering; and consumers want providers who are empathic and caring, who provide validation, and who offer emotional safety.[18]

Although cognitive behavioral therapy, motivational interviewing, and trauma-informed care are not the only brain science–informed, evidence-based approaches used to strengthen human services delivery, the strong migration of these interventions from medical and mental health settings into nonclinical organizations shows the demand for applications of this science to improve human services. Human services providers are increasingly aware that poverty, trauma, and oppression create special challenges to participants' abilities to engage in and benefit from their services, and this awareness is generating demand for new tools and training.

Level III: Coach-Navigator Interventions Based on Brain Science

Both level I and II interventions contribute to improving participants' program outcomes and, in turn, are likely to contribute to economic mobility. However, the success of such interventions is frequently limited by the fact that real economic gains are built out of innumerable such positive steps. Unfortunately, it is not

enough to successfully complete a training program, or manage a child's asthma, or stay in a job, or pay bills on time. To move out of poverty, one must do it all. And not just for a day, but for years.

This is where level III coach-navigator interventions come into play. Unlike the level I and II approaches, in which the goal is to improve participants' performance within a given human services program and increase the likelihood that the participant will successfully attain a step within the pathway from poverty, coach-navigator approaches are designed to support participants in completing the full economic mobility pathway while improving their executive function skills to the point that coaching is no longer necessary. They are called coach-navigator interventions because they help participants navigate the journey out of poverty using many different program resources in various human services silos. Rather than simply directing participants where to go, coach-navigators help participants feel empowered to make their own decisions and set their own goals. In doing so, coach-navigators assist participants in securing necessary services. Moreover, participants strengthen the decisionmaking and self-regulation skills that poverty, trauma, and stress so seriously strain, yet that are so critical to permanently sustaining exits from poverty.

The two distinguishing characteristics of coach-navigator interventions are as follows:

1. **They produce an outcome of economic mobility, up to and including full economic independence.**
   » Coaches teach participants to navigate, set, and achieve goals across multiple domains including family stability, well-being, financial management, education, and career.
   » Participants receive coaching services for as long as circumstances and funding permit—ideally until they reach full economic independence (income 80 percent or more of area median).

2. **They increase the participant's ability to make positive decisions, manage behaviors, and develop critical executive function skills that may have been compromised by the stresses of poverty.**
   » Coaches use brain science–based tools and approaches designed to mitigate stress-based challenges related to executive functioning.
   » Coaches partner with participants to create permanent improvements in personal executive functioning as frequency and duration of intervention permit.

A powerful virtuous cycle is achieved by the two parts of coach-navigator models. Solving the multifaceted real-world problems that trap people in poverty (e.g., getting a better job, getting out of debt, attending to health issues, finding better housing) relieves stress. Relieving stress clears our heads and improves our ability to think and help ourselves. Clearer thinking and better self-management improves our ability to work and thrive, thus accelerating and reinforcing our progress on the pathway from poverty.[19]

Coach-navigator models incorporate many characteristics already seen in level I and II brain science–based human services models: they use behavioral principles to make the environments of service delivery more calming, accessible, and supportive; and they use prompts, reminders, and other process

improvements to support participant engagement and success. They also train staff members in many of the brain science principles behind CBT (e.g., self-management of negative thoughts and impulses), MI (e.g., positive change, goals-based, human services approach), and TIC (e.g., supportive awareness of prevalence and impacts of trauma).

However, coach-navigator models additionally incorporate brain science–based frameworks and tools for

- holistic, participant-directed goal-setting across multiple human services domains;

- coaching for improved participant decisionmaking and executive functioning;

- assessing and consistently tracking participant progress in all areas of mobility; and

- providing positive feedback, rewards, and incentives to reinforce positive change.

Coach-navigators are usually paid employees with a relevant bachelor's or master's degree trained in techniques for promoting participant engagement, self-efficacy, persistence, resilience, future orientation, multitasking, organization, and behavior management.

Building Nebraska Families

One early coach-navigator model was the **Building Nebraska Families** (BNF) intervention. BNF was a TANF welfare-to-work demonstration program designed to improve employment outcomes for high-risk, hard-to-employ TANF recipients. The program was implemented by the University of Nebraska–Lincoln Cooperative Extension under contract with the state of Nebraska and operated from 2002 to 2006.

In BNF, master's-level professional staff members provided participants an average of 90-minute weekly or biweekly home visits for 2 to 18 months (8 months on average). During these visits, staff members coached participants via a goals-based framework that focused on improving life and employment skills in multiple domains. Life skills included personal improvement, such as goal setting; decisionmaking; self-esteem; communication and coping skills; management of anger, stress, and time; character development; building healthy relationships; child development; parenting; family management; and practical skills such as managing money, a healthy home life, and nutrition. Employment skills included those typically provided in welfare-to-work programs, including job search, résumé preparation, and those skills gained through job training and education programs.

An evaluation of BNF found that the 358 families who received the intervention (against a randomized control group of 244) significantly improved employment and family income and reduced poverty at 30 months after the program. Gains were greatest for the most disadvantaged families, in which the BNF

program group earnings were 56 percent higher ($200 a month) than in the control group. The evaluation also found that based on earnings and other gains at the end of the program, the intervention was costly ($7,383 per participant). But BNF was determined cost effective for the most disadvantaged families, and evaluators suggested that cost effectiveness for the entire population might be expected as the program model matured.[20]

Mobility Mentoring

Perhaps today's best-known and most widely used coach-navigator model is the **Mobility Mentoring** intervention developed by Economic Mobility Pathways (EMPath). First implemented in 2009, Mobility Mentoring is currently used by more than 70 organizations in 30 states and in five countries outside the United States. Organizations deploying Mobility Mentoring approaches include nonprofits providing services such as homelessness, job training, health care, community development, and early learning and care programs, along with public systems such as TANF, Early Head Start, postsecondary education, HUD Choice Neighborhoods, public housing, and anti-homelessness initiatives. In fiscal year 2017, member organizations of the Mobility Mentoring learning network (the Economic Mobility Exchange) served more than 48,000 people using Mobility Mentoring–informed tools and processes.[21]

Mobility Mentoring is defined as "the professional practice of partnering with clients so that over time they may acquire the resources, skills, and sustained behavior changes necessary to attain and preserve their economic independence."[22] It is a coaching model grounded in a brain science–based tool called the Bridge to Self-Sufficiency. The Bridge (figure 1) is based on research showing that for adults to make meaningful economic gains, they must optimize five key aspects of their lives: **family stability** (especially housing and dependent care), **health and well-being** (including physical and mental health and social supports), **financial management** (including debts and savings), **education and training**, and **employment and career**. These key areas are depicted as pillars on which the Bridge rests, and research has shown that, just as in the metaphor, if any pillar is weak, the Bridge is likely to collapse and self-sufficiency cannot be attained and preserved.

If I have set a goal, I am going to accomplish it. I have a strong desire to change the future for my son. I feel so proud of myself. Everything I've been through has helped me to become stronger.
—Nathalie, Economic Mobility Pathways client

FIGURE 1

EMPath's Bridge to Self-Sufficiency

EMPath — Economic Mobility Pathways

BRIDGE TO SELF-SUFFICIENCY®

Mobility Mentoring®

THINKING ABOUT THE FUTURE →

MAKING DECISIONS IN CONTEXT

	FAMILY STABILITY		HEALTH & WELL-BEING		FINANCIAL MANAGEMENT		EDUCATION & TRAINING	EMPLOYMENT & CAREER
	Housing	Family	Physical and Mental Health	Networks	Debts	Savings	Educational Attainment	Earnings Levels*
1	No subsidy, housing costs 1/3 or less of household gross pay	Fully able to engage in work, school, family life; children or family needs don't get in way (OR) No child or dependent family members	Fully able to engage in work, school, family life; health & mental health needs don't get in the way	Can always rely on networks to provide useful advice, guidance, and support; and advocates for others	No debt other than mortgage, expenses or more	Saving of 3 months expenses or more	Bachelor's degree or higher complete	Earnings = 80%+ AMI (Family-sustaining wage) Household size of: 2: $62,550+ 3: $65,750+ 4: $73,050+
2	No subsidy, housing costs exceed 1/3 household gross pay	Mostly able to engage in work, school, family life; children or family needs rarely get in way	Mostly able to engage in work, school, family life; health & mental health needs rarely get in the way	Can often rely on networks to provide useful advice, guidance, and support	Current in all debs and more than 2 months' expenses, but less than 3 months expenses	Savings of more than 2 months' expenses, but less than 3 months expsenses	Associate's degree or professional certificate complete	Earnings = 50% - 79% AMI Household size of: 2: $41,400 - $62,549 3: $46,550 - $70,349 4: $51,700 - $78,749
3	Subsidized housing - Pays $300+ toward rent	Somewhat able to engage in work, school, family life because of children or family needs	Somewhat able to engage in work, school, family life because of health & mental health needs	Can some-times rely on networks to provide useful advice, guidance, and support	Making minimum payments on all debts	Savings of at least 1 month and up to 2 months expsenses	Job training or certificate complete (beyond high school)	Earnings = 30% - 49% AMI Household size of: 2: $24,800 - $41,339 3: $29,900 - $46,549 4: $31,000 - $51,699
4	Subsidized housing - Pays $0-$299 towards rent	Barely able to engage in work, school, family life because of children or family needs	Barely able to engage in work, school, family life because of health & mental health needs	Can rarely rely on networks to provide useful advice, guidance, and support	Behind in payments of 1 or more debts and making payments on at least 1 debt	Savings of less than one month's expenses	High School Diploma or GED/HISET complete	Earnings < 30% AMI Household size of: 2: <$24,800 3: <$27,900 4: <$31,000
5	Not permanently housed	Not able to engage in work, school, family life because of children or family needs	Not able to engage in work, school, family life because of health & mental health needs	Can never rely on networks to provide useful advice, guidance, and support	Has debts; currently not making any payments	No savings	Less than High School Diploma or GED/HISET	Not currently employed

*Income ranges are for Suffolk County, MA. Data from HUD's 5/14/17 AMI tables

For more information, please visit www.empathways.org

Source: EMPath, "Bridge to Self-Sufficiency®," https://www.empathways.org/our-work/our-approach/bridge-to-self-sufficiency (n.d.).

The Bridge is a brain science–based scaffold or tool that permits people under stress to do things that the brain is significantly challenged to do. Science shows us that people under stress have strong tendencies to "tunnel" and are often only able to think of one thing at a time (the dominant worry or stressor).[23] The Bridge arrays all five key pillars of economic mobility on one piece of paper so both coaches (EMPath calls them mentors) and participants can easily understand and navigate the connections between them.

Brain science also tells us that people under stress often struggle to think past current circumstances. Decisionmaking horizons become foreshortened; therefore, people need supports to heighten awareness of the future implications of the decisions they make. The Bridge is also designed to do this because, again on one piece of paper, the current and future state of each pillar is depicted. This helps the mentor and participant keep the future in mind as they discuss every goal.

To understand the value of this sort of visual depiction, consider a single mother who is homeless and living in shelter with an asthmatic child. She needs to find a better place for her and her son to live. Under such stressful conditions, her brain is inclined to focus only and entirely on securing more stable housing, without considering other challenges that are equally important if seemingly less urgent, like treating her child's asthma. Left untreated, her child may miss school and she will have to stay home to care for him. Maybe she takes one too many days off work to care for her sick child and consequently loses her job. She takes out loans she can't pay back, and suddenly the issues that led to her initial homelessness are now making it much harder for her to find new housing.

In other words, although her dominant concern is her homelessness, it is likely that the mother's best step forward would be to get her son's asthma under control so she is less likely to lose her next job and better positioned to improve her finances and, in turn, her chances of securing and keeping new housing. Seeing these connections visually represented on the Bridge can help her understand the need to look beyond her housing challenges at a time when her brain naturally tends to miss the bigger picture.

In Mobility Mentoring, the Bridge is used as an assessment, goal-setting, and measurement tool that helps frame all participants' decisions about how to help themselves get ahead. During coaching sessions, mentors seek to find and build participants' unique motivations and desires, help them identify their goals, navigate and set priorities among the Bridge pillars, develop practical steps for achieving goals, find alternative strategies when plans do not work well, recognize all progress made, reward goals that are ultimately achieved, and optimize their lives in all areas of the Bridge so participants make substantive gains toward self-sufficiency. In this way, when used over short periods, Mobility Mentoring provides tools and coaching that improve the decisionmaking of people under stress. When used over longer periods, strategic decisionmaking, through repeated practice, becomes automatic and permanently improves brain wiring and executive functioning.[24]

Promising results from Mobility Mentoring are emerging in many contexts. For example, from June 2015 to June 2017, the Washington State Department of Early Learning piloted Mobility Mentoring with parents of children enrolled in Early Head Start. A recent statewide evaluation of this intervention (*n* = 10,000) showed parents receiving Mobility Mentoring had significantly higher outcomes than control-group parents in 17 areas, including earnings, education, debt reduction, legal issues, stress management, and parenting skills (all *p* <. 001). The evaluation also showed significantly higher (*p* < .001) parent sense of agency and progress, as well as satisfaction with Department of Early Learning services, than in parents who were not provided Mobility Mentoring.[25]

EMPath deploys Mobility Mentoring in homeless shelters, a Choice Neighborhood federal redevelopment initiative, home visiting programs for formerly homeless families, and public housing settings. Of the people mentored in these settings during the year ending April 2017, 74 percent of participant goals were completed successfully. Typical Bridge goals completed included **family stability goals,** such as attaining and maintaining permanent housing and obtaining child care (84 percent successful); **well-being goals,** such as losing weight or maintaining sobriety (72 percent successful); **financial management goals,** such as improving credit scores by 50 to 100 points or increasing savings (69 percent successful); **educational goals,** such as successfully completing a semester of school, certificate, or degree program (78 percent successful); and **career goals,** such as obtaining a new job or better pay (68 percent successful).[26] These outcomes are even more striking given that most of EMPath's 1,300 participants enter the program because of government assignment and eligibility, not because of self-selection or other readiness criteria.

A Brandeis University evaluation of EMPath's most intensive Mobility Mentoring program, the community-based five-year Career Family Opportunity program, showed that on average participants increased their earnings 72 percent to more than $27.00 per hour (a fully family-sustaining wage) at exit, increased tax payments 121 percent, and increased individual savings more than $3,400; the program also increased the share of participants with a postsecondary degree from 30 percent to over 90 percent. By year five, total program benefits (including earnings gains, subsidy reductions, and increases in taxes) outweighed program costs. Benefits were positive to costs by $8,000 per participant in year five alone.[27]

Since 2013, EMPath has also been developing and testing a child-appropriate Bridge (the Bridge to a Brighter Future) and additional tools designed to help parents coach their families. Early results from this work also show promise, with 89 percent of participant children (including those who are currently homeless) improving their executive functioning as measured by the independently validated Rothbart tool and 82 percent of participant families showing improvements in family stability as measured by the independently validated CHAOS tool.[28] Because of these outcomes, testing of the family Mobility Mentoring tools has been expanded to two additional sites in Seattle, Washington, and Jackson, Mississippi.

It is often suggested that coach-navigator interventions are likely too costly and difficult to scale, but in many instances, such as the Washington State Early Head Start intervention cited above, the only additional costs incurred were those of staff training and project evaluation. Statistically meaningful gains were obtained statewide. These data, along with the rapid adoption of coach-navigator models by more than 70 organizations and government entities now serving tens of thousands of participants across the US and beyond, demonstrate that coach-navigator interventions can be widely and cost-effectively scaled and that there is large-scale demand for their adoption.

Summary and Recommendations

If you ask people trapped in poverty what mobility from poverty means, they'll tell you "not having to worry all the time about how I am going to pay my bills," "knowing that my kids and I have the same shot at life as anybody else," "having access to a good, safe place to live," or "not feeling like everybody's judging me all the time, like it's my fault that I can't get ahead." These goals are not hard to understand. Everybody wants these things in life, but people living in poverty are increasingly barred from achieving them.

Charitable organizations and public programs that work with people in poverty often struggle as well. Fighting poverty has become increasingly complex for both participants and the organizations that serve them. No one service or approach provides the silver bullet. Instead what is required is improved inter-organizational coordination and participant navigation across multiple, often siloed resources over sustained periods.

Brain science and the new applications emerging from this science offer evidence-based tools and approaches proven to improve the problem-solving and goal-achievement skills of participants and the design, delivery, and coordination of organizations. Nonprofit organizations and government are hungry for the help that these new approaches offer. Proof can be found in many ways. Even without coordinated assistance, organizations are learning about brain science and incorporating these approaches in their work. During a recent focus group of cutting-edge economic mobility providers (both public and private) held by the US Partnership for Mobility from Poverty, participating organizations shared that funding brain science–based organizational learning and capacity building, and the expansion of coach-navigator approaches. could improve their effectiveness and that of similar organizations.

Participants are also demanding these resources. Organizations offering navigation and coaching approaches show voluntary multiyear participant engagement and persistence rates that far outstrip other, more traditional case-management approaches. The improved program completion rates and outcomes speak for themselves.

We finally have at our disposal new tools to radically alter the field of human services. They are evidence based and cost effective, and participants, providers, and government alike have demanded them. But most important, these new brain science approaches deeply respect the magnitude of the challenges posed by moving out of poverty, and they respect even more the motivation and capacity of people trapped in poverty to do so. The time has come to seize the tools and begin transforming the field.

Recommendations

1. **Scale coach-navigator interventions.** Expand the availability of brain science–based level III coach-navigator interventions supporting individuals' full journey out of poverty with goals-based tools and processes. Such interventions show promise for creating significant economic mobility gains up to and including the attainment of full economic independence. They do this by helping participants navigate and improve outcomes across the multiple domains necessary for economic mobility and improving the decisionmaking and behavior management skills undermined by the stresses of poverty.

2. **Educate the field.** Provide large-scale, multifaceted mechanisms to educate government and nonprofit organizations on how poverty affects human development, decisionmaking, and behavior and the ways this brain science evidence base can be applied to improve economic mobility through public systems, programs, and participant outcomes. Recommended mechanisms include publications, conferences, education and training programs, web-based information dissemination, and online learning.

3. **Strengthen existing providers.** Support the development and expansion of centers of excellence that can provide direct technical assistance to government and nonprofit organizations on implementing level I–III brain science–based approaches and improving organizational implementation.

4. **Evaluate and share best practices.** Support the rigorous internal and external evaluation of all the above recommendations, and capture process and outcomes data in a manner that supports ongoing organizational improvement, evolution of practice, and capacity building. Disseminate key learning through systematic education and field-building activities.

Appendix. Combining Brain Science–Enhanced Personal Mobility Interventions with Other Partnership Ideas

The brain science–informed approaches discussed earlier help participants better manage the many impediments poverty and stress throw in their way and achieve greater mobility from poverty. As such, these new approaches tend to enhance the potential gains of most other program and policy recommendations put forward by members of the US Partnership for Mobility from Poverty. Such potential synergistic benefits are listed by idea paper title below.

Opportunity Neighborhoods: Building the Foundation for Economic Mobility in America's Metros

This idea paper makes a strong case for the significant impact living in a neighborhood of opportunity can have on children's success as adults.[29] However, for numerous reasons, families in poverty have found such moves either undesirable or difficult to achieve. Also, once families moves, older family members do not typically benefit from such moves as greatly as their children do.

With the help of enhanced personal coaching, low-income families can often better evaluate the potential risks and benefits of moving to an opportunity-rich community, plan for how to use the move to better achieve their own personal goals and improve their family outcomes, and, after moving, better navigate their new surroundings and take advantage of the resources the community has to offer.

Opening Mobility Pathways by Closing the Financial Services Gap

This idea paper suggests that people in poverty often have limited access to the financial tools they need to build financial stability and mobility.[30]

The ability to capitalize on financial tools requires people to have strong abilities to analyze their current circumstances, develop goals they are highly motivated to achieve, create plans for how to achieve them, and then, despite innumerable challenges, delay gratification and stick with their plans. These are the

very skills that brain science helps us wire into enhanced personal mobility interventions. Many financial asset-building programs are now incorporating the enhanced personal mobility approaches discussed in this paper. In addition, programs are collaborating with other organizations to integrate financial management and asset building in programs that help participants with other economic mobility goals such as postsecondary education, building businesses, and first-time home buying. Evidence suggests that such advancements in how financial programs are delivered and collaborate contribute to significantly higher personal income gains and debt reduction.

Scale Evidence-Based Home Visiting Programs to Reduce Poverty and Improve Health

This idea paper suggests that home visiting and early learning interventions mitigate the school-readiness gap and future outcome disparities for children born into low-income families.[31] However, because these programs' primary aim is to decrease risk and improve outcomes for young children, their core purpose has been to improve parenting approaches and child development; the focus on using these platforms to develop families' economic mobility has been less fully developed.

Research suggests that when early learning and home visiting programs incorporate well-tooled adult personal mobility coaching, the resulting improvements in adult outcomes create stronger child outcomes than those seen with parenting and early learning interventions alone.[32] The combination of stronger parental executive functioning and better family income is thought to improve parenting and household regulation, which further reinforces early childhood outcomes. For these reasons, experts such as the Center on the Developing Child at Harvard University now recommend building adult caregivers' executive functioning and self-regulation capabilities as one promising way to improve early childhood outcomes.[33]

Stepping on the Gas: Community Colleges as Engines of Economic Mobility

This idea paper describes the powerful role community colleges can play in creating better economic opportunity for low-income students.[34] It is widely understood that obtaining postsecondary credentials improves future earnings; however, completion rates vary greatly between low-income and more financially advantaged students. Brain science shows that the stresses of poverty create additional challenges to memory, organization, focus, resilience, and persistence that are necessary to successfully complete postsecondary training.

Therefore, it is unsurprising that when postsecondary education programs incorporate level III coach-navigator services that can holistically help students better navigate the personal and school-based challenges in their lives, school retention and completion rates increase dramatically. For low-income students, college success requires much more than academic readiness and well-structured community college programs.[35] It requires understanding the myriad daily challenges low-income students face, along with how these challenges affect performance, and introducing new coaching tools and approaches that can work with the whole student to help resolve these challenges and improve the skills and behaviors they need to succeed. Community colleges are powerful engines of economic mobility; when coupled with strong personal mobility coaching, they become even more so.

Notes

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