

USING BRAIN SCIENCE TO DESIGN NEW PATHWAYS OUT OF POVERTY

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OUR MISSION

Crittenton Women's Union transforms the course of low-income women's lives so that they can attain economic independence and create better futures for themselves and their families.

We accomplish this by:

- Providing safe housing, caring supports, education, and training programs;
- Innovating new programmatic designs based on research and client experience;
- Using this knowledge and experience to shape public policy and achieve social change.

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EXECUTIVE SUMMARY

- Moving out of poverty is no longer a short process of following a simple roadmap to a good job. It has become a lengthy, complex navigational challenge requiring individuals to rely on strong executive function (EF) skills (impulse control, working memory, and mental flexibility) in order to effectively manage life's competing demands and optimize their decisions over many years.¹
- Experiences of social bias, persistent poverty, and trauma can directly undermine brain development and the EF skills most needed for success.
- The specific EF challenges in managing thoughts, behavior, and health caused by such adverse experiences are increasingly well understood, and this understanding may be used to improve policy and program design.
- The areas of the brain affected by adverse experiences of social bias, persistent poverty, and trauma remain plastic well into adulthood and, through proper coaching, may be strengthened and improved.
- Improvements in executive functioning are likely to positively impact outcomes in all areas of life, including parenting, personal relationships, money management, educational attainment, and career success.
- Policy makers and program leaders should attempt to use new learning from brain science to strengthen policy and program design targeting those impacted by social bias, persistent poverty, and trauma and to create frameworks and coaching approaches to augment and improve executive functioning.
- Based on early learning from brain science and its application to programs at Crittenton Women's Union (CWU), this white paper offers recommendations on ways this science may be used to improve policy and program design and participant outcomes.

¹ The terms "executive functioning" and "executive function skills" are, respectively, used to describe the mental processes and skills that include impulse control, working memory, and mental flexibility and govern such processes of strategic thinking as problem-solving, goal-setting, and goal attainment. A more detailed explanation of executive functioning may be found on page 8 of this white paper.

INTRODUCTION

A healthy economy built for long-term sustainability requires that businesses have access to skilled workers, communities have a broad base of contributing taxpayers, and individuals have sufficient income to both support their families and contribute to a robust marketplace. Moreover, children raised in households that are stable economically are far more likely to have better health, higher school achievement levels, and more long-term job prospects. For all of these reasons, it has never been more important to find a way to break the cycle of poverty. Yet our methods for doing so have not changed significantly since the War on Poverty in the 1960s, and disparities in opportunity caused by poverty continue to increase.

Finding a way to remove the obstacles that prevent people from escaping poverty today is a much more complicated process than it was in the past. The buying power of the federal minimum wage has been eroded by more than 30 percent since the 1960s. Changes in US public policy have resulted in drastic cuts in public benefits and training programs for the poor. More than 1 in 5 children in the US live in poverty, and the child poverty rate has increased nearly 35 percent since 2000 (Children's Defense Fund, 2012).² The shift from an industrial to a knowledge-based economy has meant that virtually all jobs paying a family-sustaining wage require post-secondary education.

To get ahead, low-income, single parents often face the formidable task of caring for and supporting their children while obtaining the education and training necessary to qualify for higher-paying jobs. At the same time, the public benefits necessary to supplement their low wages and help them transition to economic independence continue to shrink. In this context, "economic independence" is defined as being able to achieve a fair standard for housing, health care, nutrition, and child care while avoiding dependence on public

income or work supports such as subsidized housing or nutrition assistance. Recognizing that this is a high standard to achieve for many low-income families, it is nevertheless an important goal to aim towards. In order to attain this standard of living, low-income families must navigate complicated challenges for years because there are no short-term career paths to the family-sustaining jobs of today.

However, as much as the conditions for overcoming poverty have changed over the past 50 years, most public policies and programs are still designed to help poor adults become employed as quickly as possible in jobs assumed to pay enough to support a family along with minimal public benefits. This straightforward road map to employment worked effectively when well-paid, unskilled jobs were abundant and public benefits, such as affordable housing and child care, were better funded. To attain the higher-skilled, well-paying jobs of today's knowledge-based economy, adults need enhanced strategic-thinking skills to guide them through the innumerable decisions and trade-offs required in the complicated journey to economic independence.

The benefits of supporting low-income adults in acquiring these skills accrue to the US economy as a whole. Half of US employers report that they cannot find adequate numbers of qualified applicants for current job openings, and the US is losing global competitiveness as other industrialized nations invest heavily in educating workers and connecting them to knowledge-based jobs. The resultant earnings and skills gap creates a drag on the US economy that affects the stability of both government and the private sector, and will be increasingly difficult to remediate over time (Manpower Group, 2012) (OECD, 2013).

Transformational policies and programs are required to meet these challenges, and brain science offers a promising, practicable foundation for future direction. New brain science research shows that the most crucial decision-making skills adults draw upon to manage the complex challenges of moving ahead are often compromised by situational and chronic experiences of social bias, persistent poverty, and trauma.³ Awareness of the consequences of such experiences on learning, strategic thinking, and behavior has the potential to inform program and policy design in ways that can create significant new opportunities for low-income families.

This white paper explores the impact of factors such as social bias, persistent poverty, and trauma on human experience and development. It suggests how such knowledge can be translated into design principles that, when applied to social policies and programs, can improve participant outcomes. Finally, it offers a case example of one such program model, Mobility Mentoring® at Crittenton Women's Union, which has incorporated the recommended design principles and, although nascent, is yielding highly promising family stability and economic mobility outcomes.

² These data were taken from the US Census via Children's Defense Fund: <http://www.childrendefense.org/child-research-data-publications/data/child-poverty-in-america-2012.pdf>

³ The term "brain science" is used in this white paper to describe the array of scientific research on brain structures and functions emerging from such varied fields as the biological, behavioral, and social sciences.

TODAY'S CHALLENGES TO OVERCOMING POVERTY

When President Lyndon Johnson launched the War on Poverty in 1964, the majority of families were two-parent households supported by the earnings of one working adult. The era's landmark anti-poverty initiatives were designed to provide a road map with quick connections to jobs. In the industrially-based economy of the 1960s, this worked reasonably well. Unskilled manufacturing jobs were plentiful and paid an adult worker a family-sustaining wage. In instances when earnings were not enough to make ends meet, publicly funded housing, child care, and food subsidy programs filled many of the gaps.

Today's anti-poverty programs have changed little since that time. What has changed is the amount of public funding available for these programs and how complex and increasingly sinkhole-riven the pathway to economic independence has become for low-income families. Between 1965 and today, single-parent births have increased from 7 percent to 41 percent of all births and account for 53 percent of births to women under age 30 (Hymowitz, 2012). In today's knowledge-based economy, jobs that pay enough to support a family require post-secondary education, while education costs have vastly outstripped increases in earnings. At the same time, unemployment for those without such training is three to four times higher than for skilled workers (Youngblood, Dowd, Morgera, Melnik and Liberman, 2013).

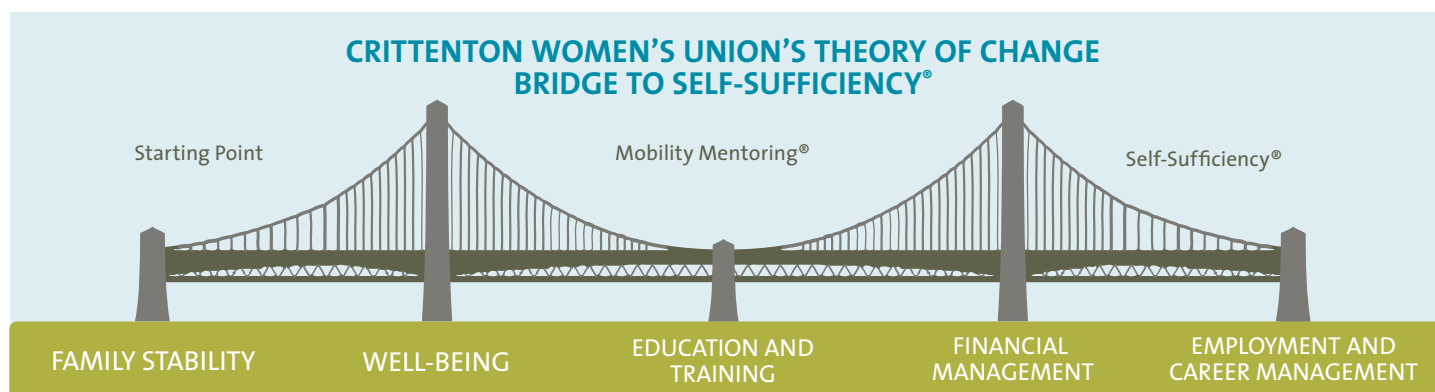
The federal minimum wage of \$7.25 an hour has lost more than 30 percent in buying power since 1968 and no longer represents a stable floor for family income.⁴ In addition, increased competition for unskilled jobs has depressed average wages at the bottom of the earnings scale and the recovery from the recent recession has not reversed these dynamics.

Today, the gross wages of a full-time, low-wage worker will not cover the average rent for a two-bedroom apartment in many of our nation's lowest-cost urban neighborhoods. Economists at The Brookings Institution and Pew Charitable Trusts refer to poverty in the US as "sticky," meaning nearly half of children born in the bottom fifth of the income distribution will remain there for their lifetimes (Isaacs, Sawhill and Haskins, 2007).

Yet policy makers and program leaders continue to rely on the same roadmap to help families move out of poverty: short-term, one-size-fits-all job training and referral programs designed to be direct pipelines to jobs. While these programs may provide employment, most often the jobs are low-paying and do not offer a path to a secure career and, ultimately, economic independence.

To attain economic independence, low-income families today must navigate a complex environment requiring strong strategic-thinking skills to set a career destination and optimize their lives in the five key areas Crittenton Women's Union has identified as pillars of its Bridge to Self-Sufficiency® (Bridge) theory of change: family stability (principally housing and child stability); well-being (principally health/behavioral health and social supports); education; financial management; and career management.

Research by CWU and others has shown that families experiencing significant deficits in any of the pillars of the Bridge are unlikely to be able to reach and maintain their economic independence. Not only is each pillar individually critical to supporting the Bridge as a whole, but the five pillars are also mutually connected and reinforcing. Deficits in one pillar cause weaknesses in others. When one pillar falls, the others often do as well (Babcock, 2012) (Banerjee and Mullainathan, 2008) (Briggs, 2003) (Curtis, Corman, and Noonan and Reichman, 2010) (Isaacs, Sawhill and Haskins, 2007) (Settersten and Ray, 2010) (ICPH, July 2013) (Thompson, 2012) (Palomar-Lever and Victorio-Estrada, 2012).



⁴ In 1968, the minimum wage was \$1.60/hour and, indexed by the federal Bureau of Labor Statistics Consumer Price Index, would be the equivalent of \$10.56/hour today. Because the minimum wage is not indexed, the difference between the price-indexed level of \$10.56 and the actual level of \$7.25 represents an erosion of more than 31 percent in the minimum wage.

DIFFICULTIES OF GOAL ATTAINMENT

Key to moving ahead on the Bridge is setting goals in each pillar that simultaneously support and strengthen an individual's progress in all the pillars. If clients attempt to concentrate on one pillar alone, weaknesses in the others can cause the entire Bridge to collapse. This carefully calibrated goal-setting is a formidable task.

The process of achieving individual goals, in and of itself, is a difficult one. To date, research in the fields of psychology, neuroscience, and behavioral economics has made relatively limited impact on success rates in such diverse and important goal-setting areas as health behaviors, money management, and educational attainment.

Although most adults know the health risks associated with obesity, for example, and many set goals to improve in this area, very few achieve and maintain their goals. Just 20 percent of US residents expressing a desire to lose weight have successfully done so and kept it off (Dawson, Grant, Stinson, Chou and Huang, November 2006) (Hill and Wing, Summer 2003).

Further, personal savings rates in the US have declined substantially over the past two decades and are currently at 4.4 percent of disposable income, even though 82 percent of people are less than fully confident they are adequately saving (US Department of Commerce, Bureau of Economic Analysis, 2013) (American Family Financial Statistics, 2012).⁵ Finally, in a national study of college completion only 26.4 percent of first-time matriculants in two-year community colleges attain a certificate or degree of any kind within five cumulative years of persistence (US Department of Education, November 2011).

Although individuals may have powerful reasons for setting goals, consistently achieving them is not easy and even more challenging for the poor. With limited access to time and money, the poor are unlikely to have the resources to try again should they fail. What may be a simple lapse to a well-resourced individual with the reserves to start over can be an irremediable mistake for a person without assets. As a result, the poor achieve lower rates of goal attainment than the general population (Mullainathan, 2012).

POVERTY-RELATED SITUATIONAL STRESS AND DECISION MAKING

Emerging science indicates the inherent stress of living in poverty has the capacity to negatively impact the decision-making processes involved in problem-solving, goal-setting, and goal attainment. The prefrontal cortex of the brain – the area of the brain that is associated with many of the analytic processes necessary to solve problems, set goals, and optimally execute chosen strategies – works in tandem with the limbic system, which processes and triggers emotional reactions to environmental stimuli.

This partnership works in an individual's favor when the limbic brain registers a strong desire and signals this to the prefrontal cortex. The activated prefrontal cortex applies itself to attaining the goal or solving the problem. However, when the limbic brain is overactive and sending out too many powerful signals of desire, stress, or fear, the prefrontal brain can get swamped and the wave of emotion can drown out clear focus and judgment (Casey et al., 2011). Cornell University neuroscientist BJ Casey describes the process this way:

Thus, sensitivity to environmental cues influences an individual's ability to suppress thoughts and actions such that the control systems may be "hijacked" by a primitive limbic system rendering control systems unable to appropriately modulate behavior (Casey, Somerville and et al., 2011).

In addition to situational stress triggering emotional reactions that can hijack decision making, the constant struggle to make ends meet, deal with the pressures of social bias, and protect against trauma also places extraordinary demands on cognitive bandwidth. Consequently, available brain capacity for impulse control, memory, and judgment is taxed to the limit. This so-called "bandwidth tax" imposed by ever-present preoccupation, fear, and worry causes significant compromises in the overall quality of decision making by the poor for whom every decision is that much more critical (Vohs, 2013) (Mani, Mullainathan, Shafir and Zhao, 2013).

Behavioral economist Sendhil Mullainathan and his co-author, psychologist Eldar Shafir, have shown in their research that such situational stresses can lower average IQ levels by almost one standard deviation. Mullainathan and Shafir compare the impact of this change to the way individuals function when they have been deprived of an entire night's sleep (Mullainathan and Shafir, 2013).

Therefore, between the inherent situational stress of poverty and its ability to compromise decision making and the intolerance for error in decision making created by the impoverished person's lack of reserves for multiple attempts at goal attainment, it is not surprising that income is directly correlated with the ability to achieve goals.

⁵ Disposable personal income is defined as total personal income minus personal current taxes.

High school dropout rates are four and one half times higher among low-income students than high-income students (National Center for Education Statistics, 2010). Low-income eighth-grade students with high academic proficiency in math are 60 percent less likely to complete a bachelor's degree than their high-income counterparts (29 percent vs. 74 percent bachelor's attainment) (Roy, October 12, 2005).

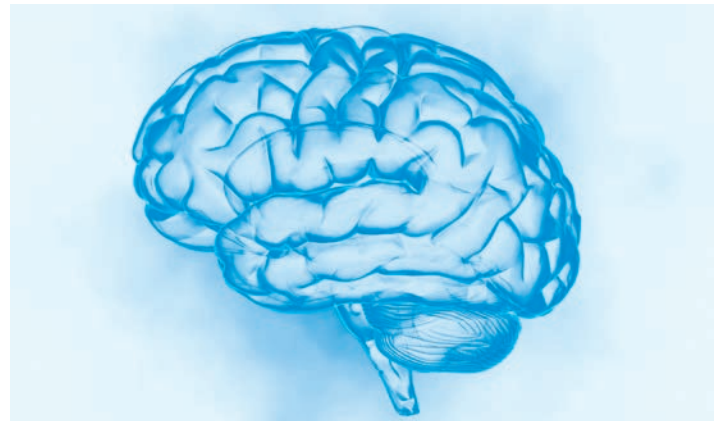
The SAT score gap between the poorest 10 percent of test-takers and the wealthiest 10 percent is 125 points (out of an 800-point scale). This gap has grown by 42 percent since the 1980s and is almost double the current score gap between African-American and Caucasian test-takers (Reardon, 2013). As these data indicate, poverty has a unique effect on learning and educational goal attainment. Importantly, research has also shown education to be the single most important leveraging tool for improving economic opportunity (Isaacs, Sawhill and Haskins, 2007).

Navigating the pathway to economically stable adulthood has become a significant challenge for even the nation's most successful young adults. Forty-five percent of college graduates ages 18 to 24 live with their parents and 21 percent of those ages 18 to 34 remain at home. Overall, independent household formation by adults age 35 or younger has decreased by 42 percent over the past decade. Today, only 33 out of 100 young adults live in their own households (Weissmann, February 26, 2013) (Fry, 2013).

But the challenges faced by adults who have been raised in poverty are even greater. In its most recent study, "Pathways to the Middle Class," The Brookings Institution reports that the likelihood of an individual making it to the middle class (defined as 300 percent of the federal poverty level) by age 40 is determined largely by circumstances of birth. If a child is born with low birth weight or has a mother who is poor, unmarried, or a high school dropout, the child has less than a one-in-four chance of making it to the middle class (Sawhill, Winship and Grannis, 2012).

Researchers have found that disadvantages at birth seem to generate the first in a cascade of subsequent negative outcomes, including lack of early school readiness; poor school performance and social and emotional development in middle childhood; lower grades, higher crime convictions, and pregnancy in teen years; and lower college completion, earnings, and independent household formation in young adulthood, which cumulatively severely impaired the ability to attain economic independence in adulthood (Sawhill, Winship and Grannis, 2012).

Societal obstacles to family stability and economic mobility have outstripped the capacities of the policy and program interventions designed to deal with them. The US now faces the problem of a growing population of impoverished families, with their earnings and public supports eroding daily, their path to economic independence increasingly complicated, and their inner capacities to navigate that path progressively compromised by the stresses created by these dynamics.



IMPACTS OF SOCIAL BIAS, POVERTY, AND TRAUMA ON BRAIN DEVELOPMENT AND FUNCTION

As policy makers and program leaders have searched for clues for developing interventions that would address the increasing inequities in opportunity, new discoveries about brain development and the manner in which that development is impacted by environmental conditions have begun to yield helpful insights. Recent research shows that brain development is not just a result of genetic inheritance, but is also strongly affected by environmental risk factors, including exposure to toxins, poor nutrition, prenatal drug use, low social status, stress, and violence, all of which are more prevalent in low-income households (Hackman, Farah and Meaney, 2010) (Sapolsky, 2005).

This research shows that such exposure has a direct impact on the development of the prefrontal cortex and limbic system, which potentiate many of the key problem-solving, decision-making, goal-setting, and goal-attainment skills critically important to achieving social and economic stability. Sometimes referred to as "cognitive skills," they largely describe the processes by which individuals consciously reflect upon, rather than merely instinctively react to, circumstances and, after reflecting, make reasoned decisions on how to proceed based on prior learning, current conditions, and future objectives.

EFFECTS ON PERSONAL AGENCY AND GOAL ATTAINMENT

For individuals to routinely and powerfully reflect upon and decide what they want to do, they must first develop a sense of agency — an understanding of themselves as individual actors capable of making their own judgments and decisions and of successfully acting upon and shaping their environment. Alternatively referred to as "sense of self," "voice," "locus of control," or "personal power," it is the necessary precursor of self-determination that spurs individuals to decide to take action.

The more forceful and fully developed the sense of agency, the more readily and automatically people pause, reflect, and decide,

rather than react impulsively. The more frequently their decisions prove to be correct and valuable to them, the more this reinforces their sense of agency, then the readier they are to trust themselves and their judgment in the future, and the more powerful they feel (de Vignemont and Fournier, 2004) (Hofstadter, 2007).

The development of agency is highly influenced by environment. Multiple studies have shown that independent of an individual's financial resources, the place he or she occupies in the social hierarchy and the level of control associated with that place correlate directly with stress and health outcomes.

In the Whitehall Studies of British civil servants whose jobs were categorized by hierarchical order, life expectancy was so closely related to an individual's civil-service rank that employees in the second rank from the top died at younger ages than those in the top rank. This difference persisted all the way through the rankings to the bottom. In one age group (ages 40-64), the death rates for those at the lower status rankings were almost three times higher than for those at the top. Interestingly, all study participants had the same access to health care. Still, the differences in mortality extended to most major causes of death (Marmot, 2006).

After subsequent research, Sir Michael Marmot, chair of the World Health Organization Commission on the Social Determinants of Health and principal researcher on the Whitehall Studies, concluded that the place an individual occupies in the social order and the associated lack of, or freedom to exercise control correlated directly with the level of disease-producing stress an individual experienced in life. The less control an individual had, the higher the rates of stress, mental illness, disease, and mortality:

This richer understanding of poverty allows us then to approach the social gradient in health, and poverty and health, with the same framework. Social conditions will determine the degree of limitation on freedom or autonomy. The greater the limitation, the worse the health (Marmot, 2006).⁶

In addition to the pressures of low social status, low-income families experience greater instability in obtaining the basic resources for survival. They move and change jobs more frequently and experience more episodes of hunger, food insecurity, homelessness, and unemployment than their wealthier counterparts. These experiences, in combination with low social

status, often cause families to feel they have little control of their lives. They spend much of their time reacting to crises and can feel there is little value in trying to think ahead since their plans never work out. Individuals who feel they are being controlled by external events, rather than by their own internal decisions, are said to have an "external locus of control," which has been shown to be passed on to the children in their care (Freed and Tompson, 2011).

Children feel the stress and volatility their caregivers experience and this is reinforced by the ways in which low-income caregivers interact with their children. Overall, low-income caregivers converse far less with children than do higher-income caregivers. A widely quoted piece of research conducted in the early 1990s suggested that by the age of four, children of caregivers receiving welfare heard 32 million fewer words than children raised in what the researchers termed "professional families" (Hart and Risley, 1995).

Subsequent research found that not only was the quantity of conversation less in low-income homes, but the nature of the conversation was different as well. Lower-income caregivers asked fewer questions (particularly guiding questions) and were more negative and directive than higher-income caregivers.

Higher-income caregivers initiated with children more conversations of a type that foster what childhood development specialists refer to as "serve and return" (National Scientific Council on the Developing Child, 2007). In other words, wealthier caregivers asked more leading questions that call for a child's thoughtful response: "Isn't this pretty? What do you think about that? Is that really the best way to do that? Can you think of a better way?" They thereby initiate conversations that go back and forth, creating richer dialogue and more stimulation for thinking than the less wordy, more directive language of their lower-income counterparts such as "Go get that for me. Sit there until I call you." (Hart and Risley, 1995) (Perkins, Finegood and Swain, 2013) (Rosenberg, 2013).

Researchers have offered a wide range of reasons for these differing child-rearing patterns. One of the simplest and most straightforward comes from behavioral economists such as Sendhil Mullainathan who suggests that the stresses of poverty simply do not leave parents the time or what he calls the "freedom of mind" to richly engage with their children. Making ends meet and solving constant crises leave low-income families little bandwidth beyond securing the basics for survival (Mullainathan, 2012) (Banerjee and Mullainathan, 2008) (Mullainathan and Shafir, 2013).

As a result of social bias and more directive child-rearing, low-income children are less likely to have been coached to develop a powerful sense of agency or high locus of control. They are less likely to have practice in identifying goals and the strategies to reach them, or in reflecting on their motivations and wants and how to obtain them. And, without the benefit of "serve and return" conversations, they are less likely to have cultivated practiced insights into the wants and motivations of those around them.

⁶ The research on correlations between social rank and health outcomes is extensive. Findings clearly show that the relative lack of personal control over life circumstances, the struggle for resources, and increased experience of violent or oppressive social behaviors trigger measurable elevation of stress hormones such as cortisol which are correlated with increased morbidity and mortality (Sapolsky, 2005).

Also of great interest is new research by behavioral psychologists suggesting that humans appear to be wired to associate social dominance with particular body postures (so-called "power poses") which if assumed, even for brief periods of time, seem to trick the body's neuroendocrine system into responding as if the person occupies a high order of social rank. This, in turn, has been shown in randomized controlled trials to lower levels of cortisol, decrease stress, increase personal sense of self-worth, and improve participant outcomes in social evaluation tests, such as job interviews, to statistically significant levels (Carney, Cuddy and Yap, 2010) (Cuddy, Wilmuth and Carney, 2012).

EFFECTS OF CHRONIC STRESS ON EXECUTIVE FUNCTION SKILLS

The highly stressful and volatile nature of growing up in poverty reinforces these developmental differences in powerful ways. The toll taken by social bias, stress of persistent poverty, exposure to trauma, and violence (all of which are more prevalent in lower-income environments) has impacts far beyond diminution of personal agency, self-awareness, or understanding of others. It causes physiological changes in brain development that deeply affect the ways people react to the world around them.

Stress and fear cause the limbic brain to trigger the release of dozens of hormones, such as adrenalin and the glucocorticoids (particularly cortisol), developed to help the mind and body prepare for self-protection. These hormones, in conjunction with activation of the inflammatory response, create the potent effects referred to as the “fight or flight” or “acute stress” response. These effects include rapid acceleration of the heart rate, increased blood flow to the limbs, activation of the immune response, increased blood sugar, and the override of many of the reflective, analytic mental processes that might slow the body’s rapid response to danger. This latter component of the chain reaction is referred to in academic literature as “swamping” or “hijacking.”

Although these bodily reactions evolved to be protective, persistent hyperactivation of the stress response can, over time, create significant negative effects, such as increased rates of disease (e.g., heart disease, hypertension, diabetes), due to overexposure to stress-related hormones and persistently elevated blood sugar and inflammatory chemicals (National Scientific Council on the Developing Child, 2005).

Chronic activation of the stress response can also create hypersensitivity to danger that often manifests itself in behaviors in which individuals’ responses appear exaggerated or unwarranted by the circumstances around them. This can include behaviors commonly described as “having a hair-trigger temper,” “reacting first and thinking later,” and “looking for trouble around every corner.” These are all plausible responses when individuals have a history of acute stress or trauma and therefore have learned to keenly anticipate danger and protect themselves.

The hyperactivation of the limbic system also affects other mental processes beyond the stress response because, as previously mentioned, the limbic brain works in tandem with the prefrontal cortex to control memory, motivations, and beliefs, which in turn influence how an individual solves problems, sets priorities, and invests attention and resources. Growing up in socially stigmatized, impoverished, and/or violent environments, children experience life as not only full of stress and danger, but also highly unpredictable and lacking in resources and options for improvement. These factors inhibit the prefrontal cortex from optimally developing key decision-making skills known as “executive function (EF) skills.”

The primary EF skills are:

1. **Impulse control (or inhibitory control):** the skills used to filter distractions, override impulses, resist temptation, maintain focus, pause and reflect before taking action, and maintain persistence in the face of worry or despair;
2. **Working memory:** the ability to mentally hold and manipulate information over short periods of time, simultaneously think of multiple things, temporarily focus on something while retaining something else in the back of the mind, retain information from one place and connect it to information from another, follow multi-step instructions, and temporarily stop doing something and return to it later without confusion or loss of continuity;
3. **Mental flexibility (or cognitive flexibility, mental shifting, set shifting):** the ability to readily switch gears, multitask, adjust plans, re-establish priorities, apply different rules or social skills in different settings, translate between languages, alter strategies based on feedback, and innovate (Center on the Developing Child at Harvard University, 2011) (Carlock, 2011).

These skills are developed relative to an individual’s opportunity and support for practicing them. If the opportunities to practice EF skills are robust, the brain physically develops increasingly rich networks of neural connections in the areas of the prefrontal cortex that support these functions.

If children are raised in environments that are mentally stimulating with rich caregiver “serve and return” conversation, if they are allowed to puzzle and explore, if they are encouraged to think about what they would like to do and have many options for achieving their goals, if they experience positive gains from not heeding an impulse but instead holding off for something more important later, they will start from the very earliest age to build neural networks that will grow increasingly powerful, making all the EF mental processes easier, more efficient, and more effective over time.

But, if children find the world full of tension and danger and their bodies are often flooded with stress hormones that swamp their prefrontal cortex and hijack their attention, if their environment is highly unpredictable with the relationships between cause and effect constantly disrupted, if the schedules and rules they live by are always changing, if they have few resources or choices, if they experience limited opportunities for “serve and return” conversation, then the neural connections for executive functioning will not be as well developed.

The differences in the brain architecture of children born into homes at opposite ends of the economic spectrum widen over time because neural networks are like systems of roads that get built based on patterns of use. In the early years of life, billions of neurons located throughout the brain branch out in every direction. As the child practices thinking in patterns that use the nerve paths in a particular direction, new links in the pathways are built, get reinforced, and become richly connected to each other in the direction of use.

The more the same paths and connections are used, the more direct and expeditious the routes between those connections become, evolving from slow and meandering paths into straighter and faster roads. Finally, the most active pathways become heavy-duty superhighways that allow for efficiency. As these active pathways are being built, unused pathways are being pared down so that the mind chases down fewer dead ends in performing its functions. This “proliferation and pruning” process creates a personalized brain architecture robustly built in the areas of an individual’s highest usage.

Children who do not have opportunities in early life to build strong neural foundations fall behind their counterparts unless intensive efforts are made along the way to help them catch up. Otherwise, childhood disadvantages become magnified over time.

However, although some areas of the brain have age-related windows of opportunity, called “critical periods,” during which new neural networks can be built, but after which development becomes more difficult if not impossible, the prefrontal cortex remains responsive to stimulation well into adulthood. Its plasticity enables it to continue, even in adulthood, to grow and strengthen new neural pathways that can support EF skills.^{7 8}

In fact, recent evidence from coaching interventions for elders shows statistically significant gains in executive functioning and processing speed with as little as one month of playing brain-training games for fifteen minutes per day (Nouchi, Taki, Takeuchi, Akitsuki et al., 2012) (Smith, Housen, Yaffe, Ruff et al., 2009). Randomized controlled trials examining the effects of similar amounts of brain training interventions on young adults with average age of 21 also showed statistically significant improvement in executive functioning, working memory, and processing speed (Nouchi, Taki, Takeuchi, Nozawa et al., 2013).

In another investigation, young adults enrolled in a Kaplan Law School Admission Test (LSAT) test-preparation program were IQ-matched with a similar control group of students planning to take the test in the future. Those in the preparation course received 100 hours of training hypothesized to create improvements in executive functioning. The training consisted of 35 hours of logic games, 35 hours of logical reasoning, and 30 hours of class-based reading comprehension. Results of training showed improvements in LSAT scores equating with a shift from the 44th percentile at inception to the 73rd percentile at completion, as well as statistically significant improvements in logic and reasoning tests.

MRIs⁹ taken of the study participants showed demonstrable physical growth in brain connectivity in the group that had taken the preparation course and no similar increase in connectivity in the control group. The areas of the brain exhibiting growth were those most associated with the problem-solving and reasoning skills for which participants were being coached (Mackey, Miller, Singley and Bunge, 2013) (Mackey, Whitaker and Bunge, 2012).

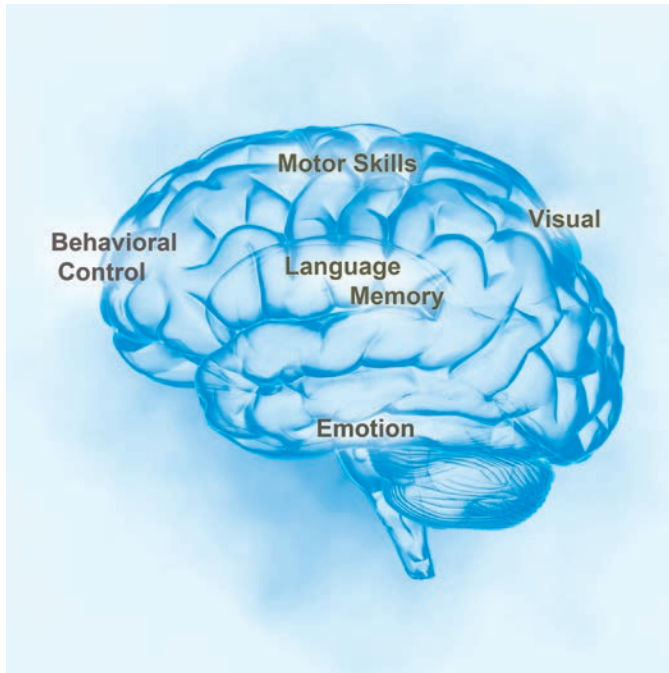
Studies such as these and many others have caused increasing numbers of scientists to reassess previous thinking about intelligence and IQ as being inherited or static and rather to suggest that:

Instead of interpreting a person’s reasoning test performance at any one moment in time as reflecting that person’s hardwired cognitive potential, these results suggest that it’s more sensible to interpret that score as reflecting the individual’s cognitive history – his or her prior levels of engagement of specific neural networks (Kaufman, 2013).

⁷ Examples of brain functions that appear to have “critical periods” or windows of development include those areas of the brain responsible for hearing, vision, and acquisition of language.

⁸ Although the brain remains plastic and can develop EF skills at any age, there appear to be two periods of particularly rich bursts in neural growth associated with EF skills: birth to age 5 and adolescence.

⁹ MRI or Magnetic Resonance Imaging is a radiological imaging technique that allows for detailed three-dimensional visualization of internal body structures including soft tissues. This visualization process enables observation of brain changes in response to sensory stimuli or to requests for the brain to process tasks or questions.



COGNITIVE, BEHAVIORAL, AND HEALTH CHALLENGES ASSOCIATED WITH POVERTY-RELATED STRESS

As has been discussed, the process of moving out of poverty is complicated, demanding patience, determination, and resilience. Beyond that, it requires personal initiative and agency, a good understanding of ourselves and others, memory, focus, problem-solving and decision-making skills, and the abilities to multitask and juggle competing priorities. The degree to which individuals possess these traits and skills depends on many variables, including but not limited to: genetic makeup, the health of their environment, the way they were raised, social rank, history of economic deprivation, and the amount of trauma, danger, and fear they have experienced.

No individual will have exactly the same mixture of genes and experiences as another. Therefore, it cannot be predicted that an individual who has experienced social bias, persistent poverty, or trauma will exhibit specific characteristics or suffer from certain deficits. However, significant exposure to social bias, poverty, and trauma impacts the human stress response and executive functioning in ways that greatly increase the likelihood that an individual will experience some or all of the following life challenges listed in **Table 1**.

Table 1 Cognitive, behavioral, and health challenges associated with chronic exposure to social bias, persistent poverty, or trauma, including difficulties with any or all of the following:

Managing Thoughts, Organization, and Learning

- Verbal fluency, including auditory learning and following verbal directions
- Maintaining focus and attention; increased distractibility
- Optimizing behavior or decision making in highly stimulating environments
- Memory retention, including general retention of information and following multi-step instructions
- Organizational skills, including keeping track of belongings or tasks
- Following plans or goals through to completion
- Thinking of logical alternatives to a particular course of action; surfacing choices and/or 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; reading tables or diagrams
- Managing life changes and changes in rules or expectations

Managing Behavior, Emotions, and Feelings

- 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/or others (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
- Maintaining equanimity when dealing with authority

Managing Health and Well-being

- Higher rates of major illnesses, such as heart disease, high blood pressure, atherosclerosis, diabetes, cancer, and obesity
- Higher rates of anxiety, depression, addiction disorders, and other mental illnesses
- Compromised immunity to diseases and elevated rates of autoimmune diseases
- Higher rates of diagnosed disabilities
- Slower rates of post-illness recovery

(Sapolsky, 2005) (Hackman, Farah and Meaney, 2010 (11)) (Carlock, EF in Adult Education Programs, 2011) (Carlock, Executive Functions: A Review of the Literature to Inform Practice and Policy, 2011) (Center on the Developing Child at Harvard University, 2011)

APPLYING BRAIN SCIENCE TO SOCIAL POLICY AND PROGRAM DESIGN

As can be gleaned from Table 1 and prior sections of this white paper, researchers have begun to produce increasingly concrete and actionable depictions of how the stresses of poverty impact human development and decision making. In a few cases, they have even made tentative recommendations on potential program and policy design changes. However, the science in this area is very new, the specific recommendations are few and almost entirely untested, and huge gaps remain between researchers' understanding of the impacts of poverty, trauma, and social bias on human development and how to apply this emerging knowledge.

In 2006, Crittenton Women's Union began research and development (R&D) on a new program platform designed to assist low-income families in reaching economic independence. This R&D process led the organization to many of the exciting new brain-science research discoveries and to design and implement a brain-science informed theory of change, called the Bridge to Self-Sufficiency® (Bridge), and its accompanying service-delivery platform called Mobility Mentoring®.

The Bridge serves as the basic framework on which all CWU's programs rest. Since 2008, CWU has served thousands of families in traditional housing, job readiness, adult education, and parenting programs using this theory of change. In addition, since 2009, CWU has served more than 400 families in tailored Mobility Mentoring® programs that engage families in brain-science based goal-setting and coaching processes. A detailed description of the Bridge and the Mobility Mentoring® platform, as well as outcomes achieved to date, can be found in Appendix B.

Although still early in its deployment, Mobility Mentoring® is producing impressive client outcomes. Formerly extremely low-income, marginally-educated families have moved out of subsidized housing into their own homes, attained college degrees and family-sustaining careers, saved thousands of dollars, and increased their measurements of well-being. None of CWU's prior work had ever led to such outcomes.

CWU attributes much of the credit for these outcomes to having built programs and tools designed to work with and ameliorate the specific EF challenges outlined in Table 1. Based on data the organization has compiled on participants' histories of adverse childhood experiences, current exposure to poverty and trauma, and current levels of diagnosed disabilities, CWU estimates approximately three-quarters of its program participants have many of the EF challenges outlined above.

Lessons learned through working with these clients within a brain-science informed framework, coupled with recommendations

from other researchers in the field, led CWU to make the following policy and program suggestions to improve social service outcomes. Appendix A also includes a collection of more detailed suggestions, along with additional resources for further research and implementation.

IMPROVE THE QUALITY OF TOOLS AND PROCESSES MEANT TO SUPPORT LOW-INCOME FAMILIES

Individuals with EF challenges are often easily distracted and taken off task. Therefore, it is important to convey essential information to clients in ways that maximize focus and attention. This requires delivering information through as **many media channels** as possible (orally, in writing, using pictures, video, and sound) and **repeating** the delivery of information. It also involves creating **easy-to-understand written documents** that are cleanly laid out, clear in content, concise, free of jargon, and absent complicated tables.

Whether due to current stress levels or prior negative experiences, clients may be unable to provide focused attention to service-delivery interactions with staff. Interactions occurring in **locations free of distractions** and in a **manner that is warm and inviting** are more likely to retain participant focus. The more programs and services **relate content to the participants' particular needs/ perspectives**, as opposed to more directive and authoritarian approaches, the better. This principle also extends to service-delivery environment and materials — the friendlier and more accessible the surroundings and presentation, the more likely to attract and retain client focus.

Program participants with EF challenges often have problems with personal organization, remembering deadlines, adhering to schedules, and following multi-step processes. Therefore, it is useful to build service-delivery elements that can assist with these personal challenges. **Organizational tools** (e.g., checklists, mechanisms for organizing personal space or program materials, routine reminders, and prompts) that are built into service-delivery systems will improve follow-through and outcomes.

Research suggests that having a shortened time horizon of personal focus and accurately weighing current needs or actions against future ramifications are frequent challenges for those with EF issues. More user-friendly service-delivery elements can **break extended tasks into incremental steps** and deliver program content in discrete, measurable modules. This approach **shortens the time frames required for assessment** and **provides frequent supportive/ constructive feedback** to improve client outcomes. This is especially the case if the completion of goals is associated with **awarding incentives** and ongoing **clear and consistent measurement** of both interim and cumulative progress.

Because of client deficits in organizational skills and taxes on time and personal resources, **designing services with a permissible path**

for clients to return and complete a particular course of action or program requirements should they drop out will improve overall participant outcomes. As indicated in goal-attainment research, CWU has found that mechanisms permitting multiple attempts toward completing a difficult goal – especially if the efforts are cumulative – increase the likelihood of ultimate success.

COACH PROGRAM PARTICIPANTS FOR SUSTAINED EF IMPROVEMENTS

Programs that have the potential to work with clients intensively or over extended periods of time may have the capacity to coach clients to significantly improve their executive functioning. As noted earlier, EF skills and the neural connections that potentiate them can be built well into adulthood. Unlike the general recommendations above, which primarily seek to provide more effective frameworks for working with participants with EF challenges, the explicit goal of coaching frameworks is to remediate the challenges themselves and improve cognition and behavior over time.

Programs wishing to support clients in improving EF skills might think about the process as one of first developing and then regularly practicing new routines of thought and behavior. Because new neural connections are built through repeated use, program designers should think about the specific habits and behaviors they hope to change and then create concrete program opportunities for participants to repeatedly practice these habits of thought or behavior.

The more frequently a specific habit is practiced, the more likely it is to become expertly executed and internalized. For example, to promote participants' paying rent on time, they should not merely receive instruction on the importance of timely rent payments. Rather, the program should create actual opportunities for participants to make timely rent payments with consistent and frequent feedback and tracking of follow-through. Ideally, incentives would be available for those families who do pay rent punctually over a prolonged period of time.¹⁰

Any significant skill building or behavior change is extremely difficult to achieve and maintain and must be initiated with full participant engagement and commitment. To create effective skill-building processes, a program must first **tap into or stimulate individual participant agency**. Participants must want change, understand the process of achieving it, and believe they are capable

of carrying out the process to gain new skills. Therefore, successful skill-building interventions do not usually begin with didactic or instructional approaches, but instead with careful assessment of participant readiness for engagement. When clients do not exhibit readiness, they can receive coaching through personal empowerment or agency-building approaches to become more prepared.

However effective a particular intervention may be at tapping into and unleashing participant agency, unless this facilitation of readiness is followed by systematic opportunities to practice new habits of thought or behavior, **empowerment programming alone is unlikely to create significant or sustained change** in participant behavior or skills.

Creating interventions that allow **individual participants to exercise choice** in their approach to skill building and goals completion can help increase their decision-making skills at the same time that it increases persistence. In coaching for improvements in executive functioning, it is key to help participants surface many ways to solve a problem, array and evaluate those options, and ultimately choose the one they find most likely to help them attain their goal. Interventions that allow participants to consistently practice such decision-making skills help foster EF skill building. When individuals personally choose their own approaches, such choice increases personal allegiance and commitment to behavior change or skill building and improves outcomes.¹¹

Because brain science is creating an explosion of new insights into executive functioning, **new coaching technologies** are also emerging. Computer games specifically designed to create fun ways for adults to improve memory, focus and attention, impulse control, organization, problem solving, and multi-tasking skills are now widely available and beginning to create positive outcomes. CWU has incorporated some of these computer games into its service delivery. Although no substantive data on this intervention were available at time of publication, early client feedback is positive. Other coaching models incorporate video of clients' interactions with others. The video is then used as a basis for coaching improvements in executive functioning by allowing clients to view their behaviors, suggest more effective alternative behaviors, implement those behaviors, and, over time, observe improved outcomes.

¹⁰ This principle is particularly well-explained in the book by Charles Duhigg, *The Power of Habit* (2012) and also well illustrated in Malcolm Gladwell's popular book, *Outliers* (2008).

¹¹ Behavioral economists such as David Laibson refer to the process of building out of personal agency to goal setting and goal attainment as "channeling intent." The critical value of creating a process that channels intent (i.e., sequentially finding a problem that matters to the client, identifying a specific goal to help solve the problem, surfacing options for attaining that goal, making a choice of the best option, and then acting on that choice) is supported by new research showing that, even in low-income families with very high stress, such a process can not only increase effective problem solving, but also significantly reduce levels of clinical depression (Feinberg, Augustyn, Fitzgerald, Sandler et al., 2013).

Simply educating staff about the special EF challenges low-income families face and the causative factors for these challenges can significantly improve staff interactions with clients and the quality of program delivery. Staff who formerly might have attributed willful intent to participants' seemingly counterintuitive decision making or behaviors, instead will realize that such thinking or behaviors is quite logical given the participants' history and experience. This realization alters staff behavior, increases tolerance, and generates more useful ideas and interventions that improve outcomes.

As noted above, although brain science is just beginning to produce information on how social bias, persistent poverty, and trauma affect executive functioning, many practical steps can be taken to apply this knowledge to improve policies and programs. Very little is known at this point about the actual impact created by such applications, but research suggests that the potential is great.

MINIMIZE ADDITIONAL OBSTACLES TO OPTIMIZING CLIENT EXECUTIVE FUNCTIONING

Because individuals living under the stresses of significant social bias, poverty, and trauma suffer a situational bandwidth tax that compromises executive functioning, and because individuals raised under such stresses experience fundamental changes in brain development that impede executive functioning, policies and program designs should include mechanisms to mitigate the challenges to executive functioning created by the policies and programs themselves.¹²

Program designs can first and most fundamentally reduce bandwidth tax **by increasing the basic resources** of low-income households. Making more resources available to low-income families is likely to reduce their worry and preoccupation with securing the basics for survival and to demonstrably improve their capacity to more effectively engage in parenting, work, money-management, and education and training.

Decreasing the tax on an individual's time can ensure a program does not intolerably increase a client's already stressed bandwidth. Any design efforts that decrease the time needed to apply for, maintain, travel to, or participate in programs or services should increase the likelihood of successful client participation and improved outcomes.

Minimizing the complexity of program and policy requirements/expectations so that they are easier to understand and require fewer steps for completion and **improving coordination** among programs and systems through efforts such as "silo-busting"¹³ co-location, and collaboration among community services are steps that should ease client interface with programs, thus optimizing outcomes.

A much more comprehensive list of EF-informed design considerations can be found in **Appendix A**, along with specific examples of how those particular design elements have been applied within CWU programs. **Appendix B** is an overview of both the processes CWU applied to incorporate an EF lens into its tools and programs, as well as the encouraging early outcomes from these programs.

CONCLUSION

Creating economic opportunity for low-income families in the 21st century means helping them to simultaneously improve their family stability, well-being, money management, education, and careers. This difficult navigational process requires problem-solving, decision-making, goal-setting, and social skills of the highest order. Science shows us that these skills are often compromised in the childhoods of low-income families and by their struggle for survival.

But awareness of the special EF challenges faced by low-income families can improve the effectiveness of policies and program design. Leaders need to follow brain science to formulate strategies for a 21st century War on Poverty and create interventions that will improve the common set of EF skills at the heart of success in parenting, school, and the workplace. In doing this, leaders will help ensure low-income families attain family-sustaining jobs, employers will have access to the skilled workers required for a competitive US economy, and children will be raised with the right tools and in healthy environments to support their future success.

¹² "Bandwidth tax" is discussed more fully on page 5 of this white paper.

¹³ "Silo-busting" is defined as breaking down the barriers among programs, public systems, and funding streams to promote more integrated, efficient, comprehensive, and effective service delivery.

APPENDIX A

BRAIN-SCIENCE INFORMED APPROACHES AND CASE EXAMPLES FOR IMPROVING PUBLIC POLICIES AND PROGRAMS TARGETING LOW-INCOME FAMILIES

I. APPROACHES TO EASE PROGRAM ACCESS AND INCREASE PARTICIPANT RETENTION

1. Programs and policies should be designed to lower barriers to entry. Streamlining procedures so that applications for programs and benefits will be easy to understand and complete, as well as logistically accessible, will aid those with EF challenges to gain access to necessary programs and services.
2. Processes for program/benefit recertification, compliance, and maintenance of eligibility should also be simplified, clearly articulated, and logistically accessible. Wherever intervals between recertification periods can be extended, policy makers and program leaders should do so unless the recertification process also provides added program value for the participant.
3. Wherever possible, program and policy silos for service delivery should be eliminated and bundled goods or services provided to minimize the navigational challenges created by separate systems. Ample evidence exists that “silo-busting” and increased coordination among services or systems improve participant outcomes.
4. Where possible, ongoing programs should be designed in a way that allows clients who must drop out of programming to return and resume participation with as few negative repercussions as possible. It is clear that high hurdles for program resumption prevent many clients in persisting to completion.
5. Wherever possible, differentiated funding streams should be combined at the organizational or systems level rather than at the client level. For example, in many industrialized nations, when citizens become unemployed, they automatically qualify for a basket of supports, including unemployment compensation, housing allowance, health care, job search, job training, and education. Applicants do not need to separately qualify and maintain eligibility for each.

Case Example:

How these design considerations are incorporated into CWU's Mobility Mentoring® platform

Mobility Mentoring® is most commonly delivered in community locations, such as public housing, or within program sites where clients already receive services. Initial services start with a drop-in model that requires no application process and no payment for services. CWU's theory of change, the Bridge to Self-Sufficiency®, ensures that all services are inherently silo-busting and holistic. Most Mobility Mentoring® programs allow clients who have discontinued services to return without penalty.

II. APPROACHES TO INCREASE CLIENT COMPREHENSION AND PROPER UTILIZATION OF PROGRAMS AND BENEFITS—"RULES AND TOOLS"

1. Critical policy and program information, requirements, and expectations should not be conveyed by oral communications alone. All critical communications should also be provided in writing and should be conveyed in as clear and concise a manner possible. Wherever visual illustrations or multimedia can be used to reinforce understanding of critical information, this should be instituted. Multimodal means of communication ensure more complete understanding by those with learning differences.
2. Instructions should be limited to the fewest steps possible and conveyed in a manner that is clear and concise. Documents should avoid complex jargon and fine print. The most important content should be conveyed up front and highlighted through document layout and formatting.
3. Documents or training materials containing friendly pictures can help to overcome initial intimidation associated with dense or official-looking content and can promote learning and understanding.
4. Many participants will find abstract or theoretical content, such as tables, theorems, diagrams, or maps, particularly challenging. These types of information vehicles can discourage attention/focus. Finding alternative ways to convey such content can help facilitate comprehension.
5. Communications should be consistent across all levels and locations of policy and programming. Participants should not encounter confusing or mixed messages at different levels or locations of service delivery.
6. Style of verbal communications can greatly enhance client understanding. Interactive communications designed to clarify the level of client understanding can be particularly useful. This means not just asking a client whether they understand something after it has been communicated, but asking leading or exploratory questions like, "What do you think about this? What kind of problems do you think might get in your way?" Such forms of communication permit staff to clarify the true level of participant understanding and also promote participant agency.
7. Interactive computerized applications, games, or other learning processes that approximate "serve and return," i.e., conveying information and asking for a participant's response to the information, content, or questions, can also be useful ways to engage and promote attention and absorption of information.
8. Information given in a friendly or encouraging manner is more likely to be retained and understood than information given in a more factual, directive, authoritarian, terse, or unsupportive manner.
9. Repetition of material delivered in a variety of ways will reinforce the understanding of critical information and help to increase effectiveness of absorption.
10. Whenever possible, information should be conveyed in an environment without competing stimuli (noises, high levels of activity, and external demands for client attention). For example, oral explanations of program expectations delivered in an open area with people walking by and with a participant's child on her lap are far less likely to be completely understood than those given in a quiet room with the child occupied elsewhere and with handouts or other multimedia resources provided for the participant to review and to take with her to revisit later.

continued

11. Whenever possible, the most complex instructions or learning processes should be scheduled for morning hours where cognitive levels are usually highest (exceptions to this would be for third-shift workers), and/or for periods during the month when financial resources are highest and participants are likely to be less stressed, e.g., on the days of benefits payments or receipt of paychecks.
12. Ramifications for failure to adhere to instructions – or benefits gained from successful adherence – should be clearly delineated and explained early in the chain of instructions/expectations, not buried in dense text or fine print.

Case Example:

How these design considerations are incorporated into CWU's Mobility Mentoring® platform

All program rules and tools are provided to clients in writing and are regularly discussed. Assessments are conducted jointly by clients and staff and not withheld from clients. Assessment and goal-setting are conducted in a private, quiet office with a one-on-one coaching “serve and return” process that leads to written documentation of expectations for both the participant and the staff. All agreements and expectations are entered into a computerized record as well.

III. APPROACHES TO FOSTER AGENCY, ENGAGEMENT, AND FOLLOW-THROUGH

1. Whenever possible, leaders should create core program elements that encourage the development of clients' self-awareness of their needs, desires, and goals; and provide relevant, useful information and resources that allow clients to take informed actions based on their preferences and beliefs toward their articulated goals.¹⁴ It is clearly understood that individuals are most likely to achieve goals they personally desire. Therefore, whenever programs can be built out of, or foster that desire, they stand a greater likelihood of being successful.^{15 16}
2. Self-empowerment programming (programming elements designed to explicitly build participants' sense of agency, self-esteem, initiative, and locus of control) is demonstrably useful in conjunction with additional program elements that can help clients identify a goal, develop a concrete path to that goal, and then follow through on intent.

continued

¹⁴ Decision-making scientists refer to this process as “channeling intent” and find that this process is highly effective in increasing goal-attainment rates (Gollwitzer and Sheeran, 2006 Vol. 38).

¹⁵ Motivational Interviewing theory provides a very good foundation of approaches for fostering client agency and connecting this agency to proposed program outcomes. Motivational Interviewing approaches encourage clients to actively talk about the changes they wish to create and to clearly depict those changes (Miller and Rose, 2009 64(6)).

¹⁶ Behavioral psychologists have also found that clear depiction and identification with “change state” is useful in improving behaviors like follow-through with retirement savings when clients are encouraged to view age-progressed pictures of themselves as elderly and encouraged to save for that elderly “self.” Such clear identification of the goal state increased retirement savings by statistically significant rates (Hershfield, Goldstein, Sharpe and Fox, 2011). The principle this research reinforces is that the clearer, more well-defined, and more multimedia vehicles used in the depiction of goals, the higher the likelihood of attainment. Programs with components that allow clients to visually depict themselves or their family's future when their goals are achieved can increase client identification with the goal state and enhance goal achievement rates. Depictions can be done through drawings, cut and paste collages, or through use of computer images.

3. Empowerment programs as independent, short-term interventions, designed solely to develop agency but unconnected to follow-up programming, are likely to have limited impact on outcomes due to the lack of opportunity to practice new skills and thereby cement the learning. New learning that is not utilized rapidly fades. Promoting agency without clear paths to develop and implement intentions can sometimes create a sense of personal failure, frustration, and future resistance to engagement.
4. Programs with frameworks for clients to concurrently array and understand choices, to grasp potential future ramifications of those choices, and finally to explore, weigh, and execute their choices create the greatest likelihood of fostering strong ownership and participation. The availability of choices in implementing intentions is positively correlated with successful outcomes because it allows for strong personal identification and ownership of not only the goal but the plan to get there.
5. Program elements that reward patterns of increased agency, self-efficacy, and investment with progressive systems of incentives and supports can also enhance building of agency and engagement. The general design principle is to match client investment of initiative, efforts, and actions with comparable levels of program commitment, benefits, and supports.¹⁷ This includes having the capacity to track and reward/encourage client investment and intermediate progress as well as desired longer-term outcomes.¹⁸
6. Creating opportunities for clients to develop group agendas, lead projects or meetings, teach something they know, advocate for something they care about, or provide systematic and meaningful feedback on programs and policies in which they are involved, are particularly muscular ways of creating and reinforcing agency, engagement, and self-esteem.
7. Where possible, leaders should consider implementing procedures that minimize overly directive or authoritarian staff behaviors and instead emphasize professional coaching or mentorship. Highly dominant or rigid patterns of staff behavior in service delivery can suppress nascent client initiative and expression of intent. They can also trigger hypersensitive or reactive client behaviors that inhibit successful engagement.

Case Example:

How these design considerations are incorporated into CWU's Mobility Mentoring® platform

Participants are engaged from the very beginning in a process of clarifying and stating their own needs, achievement goals, and preferred pathways for achievement. Mentors act as informed and supportive consultants to client decision making. The overall frame is one of co-investment. As clients' agency and effort increase, the Mobility Mentoring® frame increases the resources available to the client. Over time, clients progressively lead Mobility Mentoring® team and group processes with their peers and develop external leadership and advocacy roles as well.

¹⁷ CWU calls strategies that progressively match increasing client agency and efforts with higher levels of program investment of resources and rewards "co-investment strategies." Such strategies run counter to most prevailing social service interventions that expend greatest resources on those most in crisis. Such crisis interventions work well for the alleviation of immediate needs, but do not build client capacity. In capacity-building frameworks, participants need to be provided program resources and tools when they can most productively engage with and use them. Providing programs with high expectations of engagement and significant program infrastructure to those who are not ready can actually inhibit or diminish agency and be counterproductive.

¹⁸ Sometimes increased client agency will initially be expressed in negative or accusatory behavior. It is important, whenever possible, not to meet such initiative with equally negative or domineering responses, but rather to try and coach or redirect the energy and expression toward positive attainment of a goal the client desires to achieve.

IV. APPROACHES AND REWARD SYSTEMS TO PROMOTE GOAL ATTAINMENT

1. Service-delivery goals frameworks (program/goals expectations, tools, and goals contracts) should be extremely clear and shared in as many media channels as possible (oral discussion, in writing, and reinforced with charts or other visual explanations or frameworks). To assure that the goals are truly clear, they should follow the **SMART** goal criteria. They should be **S**pecific, **M**easurable, **A**ttainable, **R**elevant, and **T**ime-bound.¹⁹
2. Goals contracts should be documented in writing and should explicitly state how goals will be measured and verified, the expected actions required by both staff (for support) and participants (for completion) of goals, and the expected time of completion. Expected actions include clear descriptions of the steps to be taken to achieve the goals and may also include prompts or reminders to be provided by staff or clients about key steps in the action plan. Careful prompts have been shown to increase goal attainment rates by statistically significant levels.
3. Overall goals frameworks should include both goals expectations for program conclusion and also for the next anticipated point of interim goals review. For example, in the case of two-year Temporary Assistance for Needy Families (TANF) welfare-to-work programs, goals would be set for program completion two years hence and for shorter interim periods as well.
4. Interim goals should be simultaneously set for both the immediate and the succeeding goal period. In other words, if using three-month interim goal periods, goals should always be in place for both the current and following three-month period so that participants can clearly see the staging of the tasks ahead of them.
5. Wherever possible, goals reviews should happen every six months or more frequently, depending upon the program model. Timing of goal setting and reviews should be established to minimize logistical complications for clients while maximizing frequency and relevance of feedback.
6. When goals are set, they should be accompanied by a clear explanation of the positive and negative ramifications for their attainment or lack of attainment. The rewards for success and penalties for failure, and the manner in which those rewards or penalties will be administered, should be clearly understood. Routine systems of reward/penalty should be, as much as possible, codified and not subject to individual interpretation. Rewards/penalties should be triggered by client initiative and achievement as opposed to being awarded by the supposed largesse or authority of staff.
7. Incentive and measurement systems should, wherever possible, be gauged to level of effort and complexity of goals achieved. For example, a client who wants to go to college might have an initial goal to complete a Free Application for Federal Student Aid (FAFSA). This goal, when completed, might be rewarded with a \$25 incentive and the completion deadline might be set for two weeks to a month away; whereas completing a semester in college with solid grades might be rewarded with a \$250 incentive and the goal measurement time frame would be set for semester end (months away).
8. Ideally, incentive systems will be multifaceted and keyed into the particular motivational preferences of a given population. For example, clients who participate in substance abuse treatment programs often express desire for rewards of coffee shop gift cards because attending meetings with coffee is a norm for such groups and promotes a sense of belonging. Clients participating in job-training programs may express preferences for special access to

continued

¹⁹ A useful tutorial on developing SMART goals within an academic environment can be found on the Massachusetts Department of Education website: <http://www.doe.mass.edu/eval/training/modules/M4Handouts.docx>

professional networking opportunities as a performance reward because such networking opportunities can be perceived as positive recognition of having climbed a rung in the social or professional hierarchy.

9. Incentive systems may vary widely based on the goal-setting milieu and might include any or all of the following: opportunities for special public recognition, communications of encouragement, visual or other records of client progress, financial rewards, access to special privileges or opportunities, and in-kind rewards such as goods or services.
10. Failure to meet specified goals should, where possible, include not just systems of penalties, but also systems for recalibration, developing a "Plan B" to help the client get back on track, practice resilience, and understand that problems may be successfully overcome.
11. All such plan reassessment should still fit within a firm set of expectations and not be allowed to derail the established program completion ramifications. When setting goals, it is useful from the beginning to explore potential areas where the goals' plans are most likely to fail, to practice scenario planning, and to develop alternative coping strategies that can be included in the established goals from inception.
12. It is critical that all systems of goal setting, measurement, and rewards be consistently and methodically executed. They are only as effective as they are systematically deployed. Allowing goal-review time frames to lag or lapse and not following through on promised rewards or penalties seriously undermine effectiveness of goals frameworks.
13. Goals expectations should be, whenever possible, measured and aligned at all levels of the system of deployment. Such alignment assures clear shared expectation of outcomes and methodical implementation of the systems designed to reinforce goals achievement at all levels. It thereby increases the likelihood of client success.²⁰

Case Example:

How these design considerations are incorporated into CWU's Mobility Mentoring® platform

SMART goals are used in all goal setting. Goals and other program frameworks are meticulously set and routinely re-measured at established intervals of no longer than six months. Goals are set for program completion and interim measurement periods; interim goals are always in place for the current and following goals periods. Multifaceted incentive systems are deployed and used to support and reward participant achievement. Participants are routinely encouraged to think of potential problems they are likely to face in achieving goals and to plan ahead for those problems. When clients encounter significant difficulties that might derail their goals' achievement, they are coached on how to re-calibrate and get back on track. Goals are aligned and reported at all levels of the organization. The same goals are measured and reported at the client, staff, program, department, organization, and public levels.

²⁰ For example, a job-training program might have a goal of graduating 80 percent of students and placing 75 percent of those graduates in full-time jobs within six months of graduation. In this case, the board of directors should be measuring the level of organizational achievement and rewarding leadership based on its percentage of success of those goals. Leadership should measure departments on their performance achieving the same goals. Direct service staff reviews should be based on the same performance goals and clients' goals should be set and measured in the same way.

V. APPROACHES TO COACHING FOR SUSTAINED IMPROVEMENTS IN EF SKILLS

1. If the policy or program intervention has goals to create significant sustained improvements in clients' cognitive and behavioral skills, scaffolding frameworks reinforced by coaching and greater resources of staff and time will be required. The amount of growth of new neural pathways is directly related to the time and intensity with which individuals have opportunities to practice new skills and ways of thinking.²¹
2. Coaching should be offered in a positive and encouraging manner. Sometimes referred to as "strength-based," such coaching emphasizes routinely identifying opportunities to recognize the positive qualities a participant possesses, ideas or insights they have conveyed, and the improvements they have made. Such coaching makes suggestions for improvement in ways that emphasize how the changes are likely to help the participant achieve her own goals. In this manner, advice or recommended changes can be used to reinforce agency and positive self-ideation.
3. In order to reinforce skill building, program policies and procedures need to be created that systematically allow clients to practice alone and with staff, the key self-assessment, problem-solving, goal-setting, and other EF skills.
4. In particular, reinforcing skills of pausing and reflecting before making decisions, trying to find alternative courses of action, thinking ahead for "Plan B" in anticipation of problems, reframing constant negative self-assessment, and weighing verbal or physical responses to stress before acting should be practiced and coached as often as the program frameworks permit.
5. Coaching frameworks that help participants ignore (even on a temporary basis) competing stimuli or problems that may derail them so that they can maintain attention to goals and stay on task are critical to improving goals achievement rates.²²
6. Coaching staff should routinely meet with their supervisors and peers to help maintain objectivity and their own professional boundaries when working with clients; seek input and advice on how to help clients move ahead; and maintain adherence to the program frame.
7. Staff performance of tasks and problem solving on behalf of clients should be avoided. Instead, staff should encourage clients to be increasingly independent in the completion of their own tasks.
8. Multimedia and interactive interventions for coaching behaviors and learning can be particularly powerful. Examples include role-play, videotaping and review of interpersonal interactions, and/or skill-building computer-gaming applications.
9. Successful coaching requires environmental conditions that are safe and free from excessive extraneous stimulation. Coaches should be encouraging and work more through interactive exploratory prompts than from directive instructions. They should be clear that the interpersonal relationship is one of professional mentoring, and not dominance of the client.

²¹ In "scaffolding" instruction, structured tools and lessons are provided to facilitate the learner's development. An important aspect of scaffolding instruction is that the scaffolds are temporary. As the learner's abilities increase, the scaffolding provided is progressively withdrawn. As a teaching strategy, it originates in Lev Vygotsky's sociocultural theory of learning, in particular his notion of the "zone of proximal development," the distance between what a learner can do without help and the next learning s/he can achieve with competent assistance [Raymond, 2000, p.176] (R.R. Van Der Stuyf, "Adolescent Learning and Development," *Scaffolding as a Teaching Strategy* (New York, NY: City College of City University of New York, 2002).

²² This framework is very different from typical case management models that usually focus on helping participants eliminate perceived barriers to goals completion. But such processes can cause both staff and client to enter into a never-ending process of dealing with one immediate crisis after another and are frequently the reason for goal derailment. Research shows that those who consistently attain goals usually do so, at least in part, by developing skills that permit them to take their minds off of competing problems (rather than directly engage in and battle them) and retain focus, when needed, on goals-related tasks (Babcock, 2012).

Case Example:**How these design considerations are incorporated into CWU's Mobility Mentoring® platform**

Serious effort is made to capture all clients, no matter their obstacles to family stability or economic mobility, and initiate a process of engagement that continues until self-sufficiency is attained. Coaching processes start in a light touch manner during a process of administering assessment and goal-setting tools (EF scaffolding), but become increasingly intense as the length of engagement increases. As coaching processes deepen, staff work more frequently with clients on alternative scenario building (finding “Plan B”) and taking corrective courses of action to promote behavior change. This is done to help clients internalize skill-building scaffolds. Emphasis is placed on containing competing life stimuli in order to maintain goals’ focus. Computerized EF coaching applications are also being introduced to assist in skill building.

VI. APPROACHES TO COACHING FOR IMPROVEMENTS IN SOCIAL SKILLS

1. Clients should be coached to reflect upon their own and others’ motivations for actions and behaviors. Ideally, assisting clients to better understand their own, and/or to reframe their interpretations of others’ motivations and behaviors will lead to more constructive ways of handling future social interactions and better align social behaviors with the goals the clients wish to achieve.
2. Opportunities should be created for clients to test ideas with staff as to how to improve their social interactions before they deploy the new approaches with others. Clients (especially when under stress) can be encouraged to call staff, a peer, or an outside professional mentor to test their reasoning or proposed actions before making major decisions. When time and staffing permit, role-playing can be a useful mechanism for trying alternative strategies of social engagement.
3. Participants should be actively coached to join social networks and environments beyond those in which they normally participate. Particular attention should be paid to social leveraging networks that have the potential to help clients improve their chances to increase earnings, education, or other leveraging assets. Staff can suggest opportunities to clients for volunteering and joining educational, professional, and social groups or clubs. Incentive systems can be built to reward networking behavior.
4. Program-based cohorts or peer support groups offer particularly rich avenues for improving interpersonal skills and self-esteem. When working in groups, clients should be encouraged to develop and deploy their own rules and expectations for respectful and supportive group behavior and governance. As mentioned in Section III.6, above, clients should be encouraged to assume leadership roles in groups and use groups to complete projects. Social complexities will inevitably arise and the program should offer a secure environment in which to gain valuable new social skills.
5. Written social and professional communications (e.g., differentiating between the rules for professional versus personal e-mails) can be challenging for many participants. Program frameworks that encourage exploration and rule building around, and practice of, such communications can greatly enhance these social skills. For example, cohorts can develop

Facebook groups, determine how the groups are to be used and managed and develop appropriate rules for communication. Sample social networking communications can be shared with staff and peer groups to evaluate their effectiveness.

6. Program participants should be encouraged to think of their own personal, social, and professional networks and how those resources could be used by their peers. For example, clients can be encouraged to engage in group problem solving around a particular issue many find challenging (e.g., raising children with special needs), and can share resources and useful approaches. Or, clients who work in a particular setting such as a hospital might be encouraged to alert their peers to upcoming career open houses and introduce them to a human resources staff member. Participants can create “need one, give one” newsletters or message boards where they can post resources they need or are prepared to share.
7. Clients and their families should be encouraged to expand the normal geographic areas they frequent. This can be done through goal-setting processes related to education or career, or by taking social trips to events, parks, museums, and other locations. Such disruption of normal patterns of travel and social concourse has significant potential to increase agency and skill building and to reframe pre-established beliefs and values.

Case Example:

How these design considerations are incorporated into CWU's Mobility Mentoring® platform

Individual mentoring and group processes routinely encourage participants to explore their own and others' reasoning and motivations for behavior. Much of Mobility Mentoring® goes on in small and larger peer group meetings; participants are encouraged to develop the rules for these meetings and to lead them. Participants routinely build online social networking groups (such as LinkedIn or Facebook groups) and then use them to share resources, create and manage joint projects, and maintain social ties. Clients also set explicit personal goals that involve joining other social networks, expanding their geographic experiences, and sharing resources from these engagements with their peers.

VII. APPROACHES FOR IMPROVING HEALTH-RELATED PROGRAM OUTCOMES

1. Higher rates of illness and physical disability, as well as slower rates of recovery, in low-income populations suggest that program elements promoting good access to primary medical, mental health, and dental care are critical. It is also valuable to anticipate, plan for, and coach participants on how they would manage, if necessary, health-related interruptions in participation or goals attainment.
2. Because stress has such a significant impact on executive functioning, behavior, and health, connecting clients to interventions that can alleviate stress or introducing such interventions into standard programming can be highly impactful. Stress reduction techniques, such as yoga, meditation, prayer, neuro- or bio-feedback, talk therapies, acupuncture, and more, can be life-changing for clients and create the breathing room they require to introduce other behavioral changes into their lives.
3. Stress-reduction techniques are also commonly used at the beginning of program sessions to create increased readiness for focused engagement. For example, a training session on job-search techniques might open with a few minutes of stretching and deep breathing to help decrease the bandwidth tax on participants and increase likelihood of successful training engagement.
4. Physical exercise is also known to increase executive functioning by increasing blood and nutrient flow to the brain, decrease stress through increased metabolization of stress-related hormones, improve the sense of well-being through release of endorphins, and directly improve health outcomes of the major diseases related to disability and death, such as hypertension, diabetes, and obesity. Therefore, program components that include, encourage, and reward physical activity can have multiple positive effects on program outcomes.
5. When faced with consistently limited resources of time and the basics of survival, many participants routinely place the needs of those around them before their own. Introducing concepts of self-care as a means of strengthening the self in order to then provide greater assistance to others can be a useful framework for helping clients improve their goal setting and outcomes around personal development and care.

Case Example:

How these design considerations are incorporated into CWU's Mobility Mentoring® platform

The Bridge theory of change includes explicit goal setting in areas of health and well-being. Participants work individually and in groups on projects related to improving their own and their families' health. They develop and participate in nutrition, exercise, and stress-reduction programs. They also practice scenario planning for how to deal with interruptions with work and school due to health or illness. Group meetings often include opportunities to practice stress-reduction techniques and have agendas covering topics related to stress reduction and health improvement.

(Senko and Hulleman, 2013 105:2) (Messersmith and Schulenberg, 2010 130) (Etkin and Ratner, 2012 (38)) (Walker, Sterling, Latimer, Kim et al., 2012) (Broussard, Joseph, Thompson and Thompson, 2012 27:190) (Gollwitzer and Sheeran, 2006 Vol. 38) (Milkman, Beshears, Choi, Laibson and Madrian, 2011 108:26) (Lowe, 2012) (Vohs, 2013) (Mani, Mullainathan, Shafir and Zhao, 2013)

APPENDIX B

HOW CRITTENTON WOMEN'S UNION APPLIES AN EXECUTIVE FUNCTION LENS TO CREATE STRONGER PROGRAMS AND OUTCOMES

Crittenton Women's Union was formed in 2006 by the merger of two of Massachusetts' oldest nonprofit organizations serving low-income women. This merger created an entirely new operating structure for the organization. CWU now operates as an "action tank" – an organization that provides direct services and uses this service-delivery platform, in conjunction with research, to develop better economic mobility tools and program approaches, test them, take them to the broader field, and ultimately create systems change.

From the outset, CWU's goal was to develop interventions that would create demonstrable economic gains for low-income families and to move as many of those families as possible to full economic independence.²³ Through an early partnership with the Center on the Developing Child at Harvard University, it became increasingly clear to CWU leadership that emerging learning from brain science had the potential to significantly improve its program designs and participant outcomes. This new research suggested that, for CWU to create transformative outcomes, it would need to build interventions designed to accommodate participants' executive function challenges and, where possible, coach for actual

improvements in participant executive functioning.

Through a multi-year research and development process that included research on participant obstacles to economic independence, current best practices by creative programs active in the field, and emerging learning from many fields, including the brain sciences, CWU's theory of change, the Bridge to Self-Sufficiency® and the program platform designed to deliver that theory of change, Mobility Mentoring®, were created.

The Bridge was designed as an EF tool or scaffold that allows an individual participant to be concurrently assessed in what CWU determined to be the five most significant areas contributing to economic independence: family stability, well-being, education, financial management, and career management. By arraying and evaluating strengths and weaknesses in all five areas at once, it allowed staff and participants to contextualize and explore the causal relationships among all five areas and thus to begin creating a logical hierarchy of importance for intervention and goal setting. (See the horizontal axis of the Bridge to Self-Sufficiency® diagram on page 27.)



²³ CWU defines economic independence as a family's earnings reaching the level specified by the Massachusetts Economic Independence Index and also having saved an amount equivalent to three months' household expenses, the minimum asset base recommended for family stability by experts in the field (Shapiro and Wolff, eds., 2001).

This tool and the process of its administration are particularly useful because many low-income families have EF-related memory and mental flexibility challenges that prevent them from thinking about and evaluating more than one problem at a time, teasing apart how the problems interconnect, and creating strategies for addressing those problems. An EF scaffold like the Bridge permits people to record on paper multiple items (goals, steps) that their minds might not readily hold, and manipulate them in the same manner a written “to do” list helps people remember multiple tasks and organize them.

The Bridge tool also allows staff and participants to identify where the participants’ stand in each pillar area relative to the future steps required to attain self-sufficiency. In this manner, clients can visualize the steps they must complete in each pillar if they are to advance (See the vertical axis of the Bridge to Self-Sufficiency® diagram opposite). This ability to contextualize where they stand relative to the steps ahead is useful because many low-income families have challenges thinking beyond the most immediate needs confronting them.

Finally, the Bridge is a visual as well as a written framework and therefore allows for a multimodal depiction of client status and goals that, when delivered with a guided conversation, offers many avenues for comprehension. This is especially useful because individuals with EF challenges usually benefit from content being conveyed in a variety of approaches that can accommodate different learning styles.

The Bridge, therefore, is a classic learning scaffold that allows staff and client to perform analytic and goal-setting tasks that could not be readily performed without such a tool. As the client establishes goals for personal improvement and as those goals are achieved, the Bridge allows the client to clearly track her own progress and the scaffold becomes a reward framework as well.

Since it was first deployed with clients in 2009, the Bridge has been used with many hundreds of participants. Although initial designers worried that the tool might be overly complicated or depressing for clients, clients consistently give positive feedback about its value. Participants frequently state that they can now “see” why they have been stuck, felt overwhelmed, and find ways to move ahead to make their lives better.

As clients repeatedly use the Bridge, they become increasingly used to thinking about all the pillars and how they affect each other. Thinking about future implications of their decisions also becomes habituated and, eventually, clients improve their decision making without using the tool. The ultimate goal of a scaffold is to become unnecessary as strong internal skills take its place. The Mobility Mentoring® platform is designed to deliver the Bridge theory of change in the most methodical and impactful manner possible. It incorporates most of the brain-science recommended design considerations outlined in Appendix A.

The Bridge was designed as an EF tool or scaffold that allows an individual participant to be concurrently assessed in what CWU determined to be the five most significant areas contributing to economic independence: family stability, well-being, education, financial management, and career management.

Staff, called Mobility Mentors, work in partnership with clients to deliver Mobility Mentoring® services. The Mobility Mentor’s role is quite different from that of a case manager. Whereas the role of the case manager is typically to help participants deal with crises that may be preventing them from achieving a particular program outcome, Mobility Mentors help participants stand back from their current problems, examine them, and ultimately create the larger life changes that permanently eliminate those problems.

Also, unlike most case management relationships, Mobility Mentoring® is not hierarchical, but instead is a coaching partnership specifically designed to support the participant in finding her own agency, setting and achieving her own goals, gaining new cognitive and behavioral skills, navigating available networks of learning and support, strengthening persistence and resilience, and helping her life to unfold in a way that is holistic and optimizes all areas of the Bridge.

CRITTENTON WOMEN'S UNION'S THEORY OF CHANGE BRIDGE TO SELF-SUFFICIENCY®

Starting Point

Mobility Mentoring®

Self-Sufficiency®

FUTURE ORIENTED DECISION MAKING

FAMILY STABILITY		WELL-BEING		EDUCATION AND TRAINING	FINANCIAL MANAGEMENT		EMPLOYMENT AND CAREER MANAGEMENT
Housing	Dependents	Health and Behavioral Health	Social Networks	Educational Attainment	Savings	Debts	Earnings Levels
No subsidy, housing costs less than 1/3 household take-home pay	Dependent needs met; serving as no barrier to parent/guardian school or work	Fully engaged in work, school, and/or family Health / behavioral health issues serving as no obstacle	Advocate/ Networker: Uses own and other resources and connections to advance the mobility goals of others	Completed bachelor's degree or higher	Savings of three months' expenses or more	Current on all balances and no outstanding debt other than mortgage or educational and/or car loans	Job with earnings \geq Mass. Index wage (If not calculated for specific family, use income \geq \$65,880)
No subsidy, housing costs exceed 1/3 household take-home pay	Dependent needs serving as minimal disruption to parent/guardian school or work	Minimal disruption to work, school, and/or family due to health / behavioral health issues	Developed Network: Consistent source of both support and leveraging connections	Completed associate's degree or postsecondary job training or certificate program	Savings of more than two months' expenses but less than three months' expenses	Current in payments and plans and paying more than minimum payments	Job with earnings of 66-99% of Mass. Index wage (If not calculated for specific family, use income range of \$43,481 - \$65,879)
Partial subsidy (shallow): Paying \$200 or more towards rent	Dependent needs serving as intermittent disruption to parent/guardian school or work	Intermittent disruptions to work, school, and/or family due to health / behavioral health issues	Emerging Network: Consistent source of support and occasional leveraging connections	Attending college or postsecondary job training program	Savings of at least one months' and up to two months' expenses	Structured payment plans in place and meeting minimum payments	Job with earnings of 33%-65% Mass. Index wage (If not calculated for specific family, use income range of \$21,741 - \$43,480)
Full subsidy, permanent housing: Paying \$200 or less towards rent	Dependent needs serving as significant obstacle to parent/guardian school or work	Regular and recurring disruptions to work, school, and/or family due to health / behavioral health issues	Limited network: Occasional source of support	Completed postsecondary remedial education classes, college preparatory program, or prerequisites for job training/ readiness program	Savings of less than one months' expenses	Debts in excess of ability to pay, behind in payments	Job with earnings less than 33% Mass. Index wage
A. Homeless / co-housed with family or friends B. Homeless / transitional housing Homeless / emergency shelter	Recently emergent or not yet addressed dependent needs, requiring additional attention	Severely limited engagement in work, school, and/or family due to significant health / behavioral health issues	Isolated or draining network	Attending postsecondary remedial education classes, college preparatory program, or fulfilling prerequisites for job training/readiness program High school diploma or General Educational Development certificate GED obtained No high school diploma or GED	No savings	Defaults or nonpayment on all or most loans and accounts	Unemployed

CONTEXTUALIZED DECISION MAKING

DESCRIPTION OF MOBILITY MENTORING®

Mobility Mentoring® is 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 (Babcock, 2012).

Mobility Mentoring® services are delivered by Crittenton Women's Union in three levels of engagement. Level One is a "light touch" engagement provided primarily in conveniently located drop-in centers, shelters, and other CWU program settings. The principal focus of this level is promoting engagement and agency. Clients typically set one or more simple goals with fairly short time horizons (six months or less).

Level Two is a medium level of engagement provided in the same settings as Level One. The primary focus of this level is increasing agency and promoting persistence. Clients at this level typically set multiple goals at a time. These goals are usually multi-step (e.g., completing a multi-week or month training process or receiving






family intervention), take six months to 18 months to complete, and are usually set and monitored in six-month increments.

Level Three is the deepest level of Mobility Mentoring® engagement. These services are provided in the locations listed above, but also in supported-housing programs. Clients must apply to get into Level Three programs which are designed to promote resilience, coach for EF skill building, and help clients internalize scaffolding such as the Bridge. Goals are established in all five areas of the Bridge, usually take multiple years to complete, and are set and evaluated in six-month increments. CWU's Career Family Opportunity (CFO) Program is a Level Three Mobility Mentoring® program that CWU started in 2009.

Since that time, outcomes from the intervention have been encouraging and significantly better than community benchmarks or prior CWU outcomes. Examples of some of these outcomes achieved at CWU in fiscal year 2013 (July 1, 2012 through June 30, 2013) are illustrated on the opposite page.



MOBILITY MENTORING® OUTCOMES FOR ADULTS SERVED IN FY2013¹ (July 1, 2012 – June 30, 2013)

By Bridge to Self-Sufficiency® Pillar			
BRIDGE TO SELF-SUFFICIENCY PILLAR	AT MOBILITY MENTORING® PROGRAM ENTRY	AS OF LAST FY13 OUTCOME MEASUREMENT	COMPARISON TO COMMUNITY BENCHMARKS
Family Stability 	100% of participants in CWU's Career Family Opportunity (CFO) program were residing in subsidized housing	89% of CFO participants resided in subsidized housing •9% have purchased homes •2% have moved to market-rate rental units	Nationally, 6% of homebuyers are single mothers and 4% of homebuyers are single mothers with an income of 0-80% of area median income (AMI)
	CWU served 158 families in housing stabilization, all of whom originated from emergency family shelter	100% of CWU families in stabilization for 12+ months maintained permanent housing after exiting shelter	75-91% of families participating in three Mass. Homelessness prevention efforts maintained housing stability after 12 months
Well-Being 	20.3 Overall Quality of Life Score for CFO participants ² 66% of CFO participants scored above 19	21.5 Overall Quality of Life Score for CFO participants 89% of CFO participants scored above 19	Scores below 19 indicate a poor quality of life. A difference in two to three points in the overall score has been found to be clinically meaningful
Education and Training 	32% of CFO participants had an AA degree or higher broken down as follows: •14% Associates; •14% Bachelors; •4% Masters	52% of CFO participants have an AA degree or higher broken down as follows: •27% Associates; •14% Bachelors; •2% graduate certificate; •9% Masters	Six-year college completion rate for low-income students is approximately 11% 46% of adults of any income level in Mass. have an Associates degree or higher
Financial Management 	\$0 saved into matched savings account by CFO participants 21% of adults entering shelter had any money saved	\$1,528 average saved into matched savings account by CFO participants 40% of adults in shelter saved at least \$150 or contributed at least \$150 towards debt	76% of families in the bottom quintile have bank accounts. Of those with bank accounts, the median balance is \$600
Employment and Career Management 	59% of CFO participants were employed: average wage \$14.82/hr. 0% of CFO participants were earning a family-sustaining wage at entry 45% of adults were either enrolled in school OR employed at program entry	68% of CFOs are employed; average wage \$20.18/hr. 30% of CFO participants are earning a family-sustaining wage 80% of adults were either enrolled in school OR employed in FY13	The median income for single mothers in Mass. is \$13.13/hr. ³ 64% of low-income families in Mass. are employed; 53% of the non-elderly, non-disabled HUD public housing authority-assisted households are employed

1. Results in grey are for short-term program delivery in CWU shelters in Boston and Cambridge with average participation of 12-18 months. Participation numbers (N) vary based on program type. Results in blue are for CWU's multi-year program delivery called Career Family Opportunity (CFO)(N = 44 participants). Participants enter this program on a rolling basis after an application process, and had achieved 2.5 years average program participation at the time these data were gathered.

2. The Ferrans and Powers Quality of Life Score measures both satisfaction and importance of various aspects of life. Scores are weighted in order to reflect an individual's satisfaction with areas of her life that she values most. Scores are calculated for psychological, social, economic and family satisfaction, as well as life satisfaction overall.

3. CWU publishes a cost of living measure called the Massachusetts Economic Independence Index (Mass. Index) which reports exactly how much income it takes for a family to make ends meet in Massachusetts without relying on public assistance. We use this data to determine family specific self-sufficiency wage goals in CWU programs. For more information go to www.liveworkthrive.org

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