*Resilience in Children*
*Lessons for Science, Practice, and Policy*
*Ann S. Masten*
*University of Minnesota Twin Cities*

---

*Pioneering insight*

From the study of resilience we can learn how to improve outcomes for children and youth at risk...

[circa 1970]

Lois Murphy    Norman Garmezy    Emmy Werner    Sir Michael Rutter



---

## Resilience Research
### 40+ years and 4 waves
See Masten 2011

| Research Framework | Intervention Framework |
|---|---|
| • Meaning | |
| • Mission | • Mission |
| • Models | • Models |
| • Methods (research) | • Methods (strategies) |
| • Measures | • Measures |
| • Multiple levels, disciplines | • Multiple levels, disciplines |

## Translational Synergy

---

*4 waves of resilience science*

- Wave 1 ~ descriptive
  Who is resilient? What makes a difference?
- Wave 2 ~ shift to process
  How do protective factors work?
- Wave 3 ~ testing causal process
  Can resilience be promoted through intervention?
- Wave 4 ~ multilevel dynamics
  Can we expand and integrate resilience science across levels & disciplines?

Masten 2007, 2011 in *Development and Psychopathology*
Sapienza & Masten, 2011 in *Current Opinion in Psychiatry*

---

*Defining resilience*
*evolution of a concept*

Early days
  "invulnerability" and "stress resistance"
  good function/development despite trauma, risk, adversity

Nowadays...
"the capacity of a dynamic system to withstand or recover from significant challenges that threaten its stability, viability, or development"

(Masten 2011)

---

*Questions changed*

- Risk approach (Gruenberg 1981)
  – Who gets sick?
  – Why?
  – What can we do to make the sickness less common?

- Resilience approach added
  – Who does well or recovers well?
  – Why?
  – What can we do to promote and protect health or positive development?

## Mission changed

- Frame positive goals

  - Research to understand positive development in a context of risk

  - Promote competence

  - Identify protective factors

  - Intervene to improve or mobilize protective processes

  - Promote resilience to understand protective processes

## Models changed

- Include positive factors, process, and actions
  - Assets and resources as well as risks
  - Protective factors/processes as well as vulnerabilities
  - Promoting competence as well as reducing psychopathology

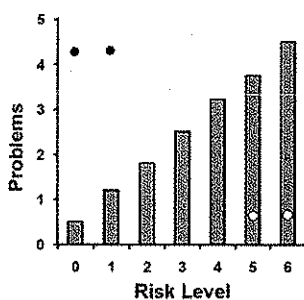- Transforming intervention models

## Pathways Model
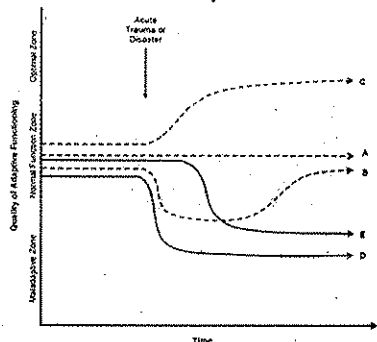


Masten & Narayan 2012 *Annual Review of Psychology*
Masten & Obradović 2008 *Ecology and Society*

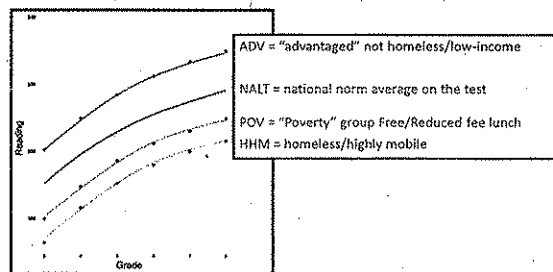## Resilience
### after severe adversity remits
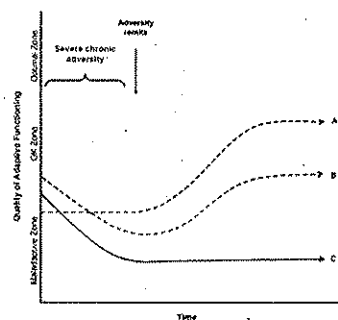


## On and Off a Risk (Dose) Gradient

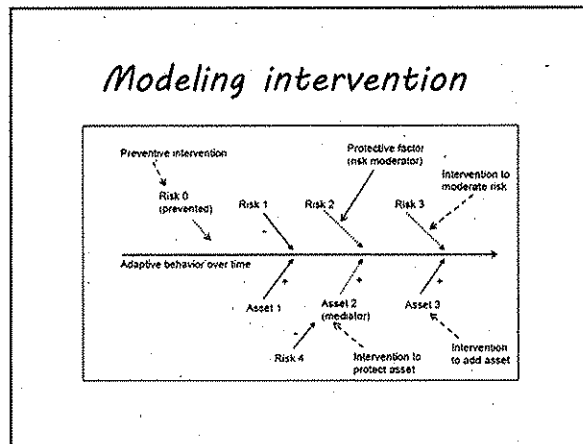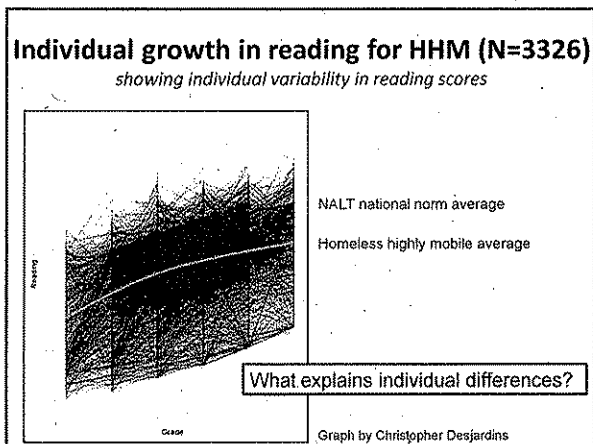

Collaborative Studies with Minneapolis Public Schools example
Growth Curves for Reading Achievement
28,115 students MPS tested 2004/5 to 2007/8



ADV = "advantaged" not homeless/low-income

NALT = national norm average on the test

POV = "Poverty" group Free/Reduced fee lunch

HHM = homeless/highly mobile

• Raw means shown in red
Graph by Christopher Desjardins

## Individual growth in reading for HHM (N=3326)
*showing individual variability in reading scores*



NALT national norm average

Homeless highly mobile average

What explains individual differences?

Graph by Christopher Desjardins

## *Modeling intervention*



## *Measures changed*

- Tracking positive development as well as psychopathology or problems
  – Competence

- Potential protective factors

## *Methods of intervention changed*

- Prevent risk, reduce exposure

- Promote competence and positive change
  – Add resources and assets
  – Mobilize or improve protective systems
  – Prepare for disaster response

## *Take home #1* Dose matters
### Risk & Cumulative Risk

- Severity and repeated exposures often increase risk

- Risk factors often pile up in families and lives

- Transitions and times of crisis often pile risks on people in a concentrated window of time

- Emotional, behavioral, educational, work, and health problems rise as risk levels rise

- Snowball effects and developmental cascades occur
  – one kind of problem can lead to another
  – effects can spread in family members

## *Take home #2*
### Assets and resources matter

- Children who make it have more resources

### Take home #3

### *"Ordinary Magic"*

- Competence and resilience does not require something rare or special

---

### The "short list" for resilience in young people

- Close relationships with competent caregivers
- Connections to other competent, caring adults
- Problem-solving skills
- Self-regulation skills (executive function)
- Positive self-perceptions
- Hope and belief life has meaning
- Faith, religious & other cultural affiliations
- Socioeconomic advantages
- Connections to prosocial, competent peers
- Connections to effective schools/organizations
- Community safety and collective efficacy

---

### What does the short list mean?

- Fundamental human adaptive systems are important for resilience under many different circumstances
  - These can be studied at multiple levels of analysis

- Adaptive capacity extends beyond the person into other systems
  - Families
  - Community systems
  - Ecological systems

---

### *Resilience arises primarily from basic adaptive systems*

- Resilience and recovery across diverse situations appears to depend on how well a fundamental set of adaptive systems are working

---

### Adaptive systems in the individual

- **Learning/problem-solving/information systems**
  - A human brain in good working order
  - Equipped with a powerful thinking system

- **Mastery motivation system**
  - Self-efficacy or intrinsic motivation
  - Motivated to adapt

- **Self-control or regulatory capacity**
  - Of attention, affect, impulse; executive control
  - Able to control behavior to behave strategically

---

### Take home #4
### Individual differences matter

- Development
- Cognitive skills
  - Problem solving
  - Cognitive control
- Personality
  - Stress reactivity
  - Conscientiousness
- Sensitivity to experience
- Health and immune function
- Genetic and epigenetic variations

## Shelter-Based Studies
### School Success in Motion

- 2006 - 2007 preliminary studies
- 2008 to date – NSF funded study
- 2010 to date – pilot studies focused on prevention
- 2010 to date – National Children's Study (assessment tools)
- 2011 – 2014 IES funded prevention developmental grant
- Predictors of success in school
  - Executive function
  - Parenting
  - Risk and adversity
  - HPA (biological stress response; cortisol)
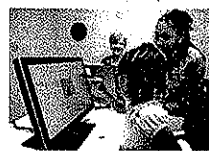
## Why EF?

- Long implicated in resilience
- Associated with competence and effective parenting
- Important for learning
  - Teachers expect EF skills
- Develops rapidly in preschoolers
  - Window of opportunity
- Promising malleability
  - Improved by preschool curricula
  - Improved by highly focused training
  - Improved EF linked to changes in brain function

## Adaptive systems in the family and other relationships

- **Attachment relationships**
  - Early caregiving system and over the life span

- **Social-control or regulatory capacity**
  - Effective parents, families, other connected adults
  - Prosocial friends and romantic partners

## Take home #5
### Families matter

- Moderating stress
- Epigenetic programming
- Nurturing body, mind and spirit
- Emotional security
- Economic security
- Safety monitoring
- Scaffolding learning and self-regulation skills
- Facilitating achievement in developmental tasks
- Brokering of resources (social capital)
- Transmitting cultural capital

## Protective Systems at Other Levels

- Within the individual
  - Immune system
  - Arousal regulation systems
  - Stress systems

- In religion and other cultural systems
  - Meaning-making systems of belief, rules and rituals for living
  - Attachments to spiritual figures
  - Arousal regulation through meditation or prayer
  - Cultural practices that provide support

- In community and society systems
  - Effective schools
  - Communities that work
  - Good health care systems
  - Policies and laws that protect young people or adults

## Take home #6
### Multiple systems *interacting* matter

- genes to solar system
- microbiome to media

## Embedded interacting systems

- Interacting
- Interdependent
- Ecological model
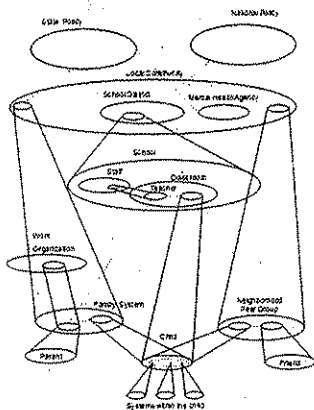


## Take home #7
### Greatest dangers for children..

- When basic protective systems for adaptation and development are impaired, harmed, destroyed, or unavailable
  - Parents killed or disabled
  - Separation from secure base figures
  - Brain injury
  - Mastery motivation system extinguished
  - Faith, hope, or life-meaning shattered
  - Dysregulation of key adaptive systems
  - Persistent severe trauma overwhelms all of the adaptive capacity of child, family, or community

*Nurturing and restoring these systems is a priority*

## Take home #8
### Resilience can be promoted



## Mobilizing or Improving Adaptive Systems

- Foster secure attachment relationships
- Improve bonds with competent/caring adults
- Support healthy family formation and function
- Foster friendships with prosocial peers
- Foster school bonding and engagement
- Improve systems of care
- Nurture brain development
- Provide opportunities to succeed & develop talents
- Support cultural traditions that provide children with adaptive tools and opportunities to connect with prosocial adults

## What about children in care?

- Nurture, protect, support and restore basic adaptive systems for human development
  - In and around the child
  - In and around the family
  - In and around the child welfare system
  - In and around culture, community, society

## Take home #9
### Interventions that work typically …

- Are developmentally informed
- Culturally appropriate
- Ecologically and developmentally strategic
- Take advantage of existing strengths
- Mobilize the power of basic human adaptation systems
- Promote competence or health as they reduce risk or problems

## Windows of Opportunity

- Prevention windows
  - before problems begin to snowball or cascade
  - before and during key transitions
    - entering school
    - aging out of foster care
  - when key adaptive systems organize

- Change and recovery windows
  - when conditions converge for change
  - when multiple systems are in flux
  - emerging adulthood
    - brain development, opportunities, motivation

## Take home #10
## Remember

- Adaptive systems can be hijacked
  - drug addiction or gang recruitment

- Long term patterns can differ from short term
  - adaptive trade-offs

- Resilience is not "a trait" or "a process"
  - many attributes and processes involved

- There are no magic bullets or invulnerable people
  - No right stuff or protective factor for every situation

- There are multiple pathways to resilience

## Final reflections

### Horizons in Resilience

- Prlasticity and change in brain development & funciton

- Protective genes and sensitivity to context

- Windows of opportunity for promoting resilience

- Prevention economics

- Resilience across scales, systems and sciences

## Translational synergy is emerging

- Integrating research & intervention frameworks to promote resilience & advance science simultaneously

- Building theory-informative and practical interventions

- Collaborative from inception

- Designed in the field by partners representing the best of science & service expertise

- Intervention experiments to promote resilience also represent the best tests of resilience theory

## 5 Ms
## A Resilience Framework for Action

- Mission ~ frame positive goals

- Models ~ include positive influences & outcomes

- Measures ~ assess positive resources, outcomes

- Methods ~ prevent, promote, protect

- Multiple ~ levels of analysis and disciplines

## Mission
## Frame Positive Objectives

- Positive statements of goals

- Treating illness ➔ Promoting or restoring health & well being

- Preventing violence, problems, risky behaviors ➔ Promoting conflict resolution, healthy relationships, civic engagement, gun safety, positive youth development, school and work success

- Promoting the positive to prevent problems

- Marketing appeal to stakeholders

## Models
*Include positive influences and outcomes*

- Competence and positive outcomes as well as symptoms or problems

- Protective factors as well as vulnerabilities

- Assets and resources as well as risks

## Measures
Track the positives along with the problems

- Assess the positive as well as the negative
  - Strengths in the child, the family, the community
  - Potential sources of resources and protective factors

- Evaluate positive and negative outcomes
  - Gains, achievements
  - Competence as well as problems or symptoms

## Methods
Consider strategies for positive change

- **Risk-focused**
  - Prevent or reduce risk, adversity, trauma exposure

- **Asset-focused**
  - Increase resources or access to resources

- **Process-focused**
  - Restore, mobilize, or harness the power of human adaptation systems

## The 5th M
Cumulative protection, multiple levels

- Combined strategies for multifaceted risk

- Multiple levels for intervention
  - Individual organism
  - Family, school, peer systems (see figure)
  - Cultures and religions
  - Communities
  - National identities
  - Increasingly in electronic worlds, multimedia

## Therefore...
### Collaboration is Important

- Multiple systems and levels are involved

- Effective interventions often target multiple systems

- Adversity or risk often comes in cumulative-multifaceted forms requiring multiple intervention strategies

- No one person has the capacity to acquire all the training needed to understand or intervene in multiple systems

- Collaborative intervention benefits from collaborative training experiences

## Changing Systems

- Resilience based systems
  - Positive development
    - Mental health and well being
    - Physical health
    - Competence and success in developmental tasks
  - Capacity for resilience

- Examples
  - Schools
    - SBSC (Strength Based School Counseling)
  - Clinics
    - Promoting health and preventive care
  - Integrated systems of care and research
    - Looking After Children (see Masten, 2006)
    - NS6newsynthesis.com
    - KIDS (Philadelphia)

# Selected Resilience articles

Masten, A. S., & Narayan, A. J. (2012). Child development in the context of disaster, war and terrorism: Pathways of risk and resilience. *Annual Review of Psychology, 63,* 227-257.

★Sapienza, J. K., & Masten, A. S. (2011). Understanding and promoting resilience in children and youth. *Current Opinion in Psychiatry, 24,* 267-273.. **[What's new in resilience science]**

Masten, A. S. (2011). Resilience in children threatened by extreme adversity: Frameworks for research, practice, and translational synergy. *Development and Psychopathology, 23,* 141-154.

Masten, A. S., & Wright, M. O'D. (2010). Resilience over the lifespan…In J. W. Reich et al. (Eds.), *Handbook of adult resilience* (pp. 213-237). New York: Guilford Press. http://www.cehd.umn.edu/ICD/faculty/docs/Masten_Wright_Guilford_Lifespan_book_2009.pdf

★Masten, A. S. (2009). Ordinary Magic: Lessons from research on resilience in human development. *Education Canada, 49(3):* 28-32. http://www.cea-ace.ca/education-canada/article/ordinary-magic-lessons-research-or-resilience-human-development

★Masten, A. S., & Obradović, J. (2008). Disaster preparation and recovery: Lessons from research on resilience in human development. *Ecology. and Society, 13(1):* 9 http://www.ecologyandsociety.org/vol13/iss1/art9/

Masten, A. S., Herbers, J. E., Cutuli, J. J., & Lafavor, T. L. (2008). Promoting competence and resilience in the school context. *Professional School Counseling, 12,* 76-84.

Masten, A. S. (2007). Resilience in developing systems: Progress and promise as the fourth wave rises. *Development and Psychopathology, 19,* 921-930. [Special issue on strength-based school counseling]

★Masten, A. S. (2006). Promoting resilience in development: A general framework for systems of care. In R. J. Flynn, P. Dudding, & J. G. Barber (Eds.), *Promoting resilience in child welfare* (3-17). University of Ottawa Press. **[Commentary on "Looking After Children" system reform]**

★Masten, A. S. (2001). Ordinary magic: Resilience Processes in Development. *American Psychologist, 56,* 227-238. **[most widely cited Masten article on resilience]**

Masten, A. S., & Powell, J. L. (2003). A resilience framework for research, policy, and practice. In S.S. Luthar (Ed.), *Resilience and vulnerabilities: Adaptation in the context of childhood_adversities* (pp. 1-25). New York: Cambridge University Press.

# Selected on Homeless Children

Herbers, J. E., et al., (2011). Direct and indirect effects of parenting on academic functioning of young homeless children. *Early Education and Development, 22,* 77-104.

Cutuli, J. J., Herbers, J. E., Rinaldi, M., Masten, A. S., & Oberg, C. (2010). Asthma and behavior in homeless four to seven year olds. *Pediatrics, 125, 1,* 145-151.

Cutuli, J. J., Wiik, K. L., Herbers, J. E., Gunnar, M. R., & Masten, A. S. (2010). Cortisol function among early school-aged homeless children. *Psychoneuroendocrinology, 35,* 833-845.

Obradović, J., Long, J. D., Cutuli, J. J., Chan, C.-K., Hinz, E., Heistad, D., & Masten, A. S. (2009). Academic achievement of homeless and highly mobile children in an urban school district: Longitudinal evidence of risk, growth, and resilience. *Dev. and Psychopathology, 21,* 493-518.

★Masten, A. S., et al. (2008). School success in motion: Protective factors for academic achievement in homeless and highly mobile children in Minneapolis. *CURA Reporter, 38 (2),* pp. 3-12, Summer 2008. http://www.cura.umn.edu/reporter/08-Summ/Summ-08-issue.pdf

★Masten, A. S., & Sesma, A. (1999). Risk and resilience among children homeless in Minneapolis. *CURA Reporter, 29* (1), 1-6. http://www.cura.umn.edu/reporter/99-Jan/article1.pdf

See also the Summer 2011 issues of CONNECT magazine (College of Education and Human Development) article. http://www.cehd.umn.edu/connect/2011Summer/Connect-2011-Summer.pdf