Growing up and out of crime: A developmental approach to juvenile justice

Edward P. Mulvey, Ph.D.
University of Pittsburgh School of Medicine

Presentation at Schubert Center for Child Studies,
Case Western University, Cleveland, Ohio, November 8, 2013
Goals for Today

- Present some general themes and specific results from current research initiatives in juvenile justice
  - National Academy of Sciences panel report, “Reforming juvenile justice: A developmental approach”
  - Pathways to Desistance study

- Identify some of the implications of these findings for practice and policy
National Academy of Sciences

- Chartered by Congress in 1863
- Purpose: To advise the government and the nation on critical national issues through objective, scientific, and evidence-based research and analysis
- Independent, balanced, and objective; Not an agency of the federal government.
Committee Process

- Scholarship and stature of Academies’ members

- Committee members serve *pro bono*, ensuring the breadth and balance of interdisciplinary committee composition

- Discussions with and without consultants

- Quality assurance and control procedures, including a strict peer review process

- Written reports (source of “formal advice”) based on evidence and rigorous analysis, ensuring independence and objectivity
Assessing Juvenile Justice Committee

- **Charge:** To assess the implications of advances in behavioral and neuroscience research for the field of juvenile justice and the implications of such knowledge for juvenile justice reform.

- **Members:**
  - 6 from the social sciences
  - 2 physicians
  - 3 practitioners
  - Director of state children’s services
  - Director of state juvenile corrections
  - Juvenile court judge
  - 2 with law/public policy expertise
  - 1 neuroscientist
Committee Members

Robert L. Johnson (Chair), UMDNJ - New Jersey Medical School
Richard J. Bonnie (Vice Chair, IOM), University of Virginia
Carl C. Bell, Community Mental Health Council, Inc.
Lawrence D. Bobo (NAS), Harvard University
Jeffrey A. Butts, John Jay College of Criminal Justice
Gladys Carrion, New York State Office of Children & Family Service
B.J. Casey, Weill Medical College of Cornell University
Kenneth A. Dodge, Duke University
Sandra A. Graham, University of California, Los Angeles
Ernestine Gray, Orleans Parish, Louisiana
Edward P. Mulvey, University of Pittsburgh School of Medicine
Robert Plotnick, University of Washington
Elizabeth S. Scott, Columbia University
Terence P. Thornberry, University of Maryland
Cherie Townsend, Texas Youth Commission
Adolescents are qualitatively different from adults and younger children.
The Neuroscience
fMRI
functional Magnetic Resonance Imagery
Image adapted from Gogtay N. et al. Dynamic mapping of human cortical development during childhood through early adulthood. PNAS 2004;101(21): 8174 - 79, Fig. 3; downloaded from www.brainfacts.org
“Different parts at different times”

Executive Function
- reasoning
- problem solving

The Conductor
- judgement
- impulse control
- emotions

- numbers
- processing sensory input
- language
- analytical abilities

Frontal Lobe
under development
The last part of the brain
to mature
(at about 24 years old)

Parietal Lobe
under development

Occipital Lobe
visual processing

Temporal Lobes
hippocampus - long-term memory
amygdala - emotional center

Cerebellum
supports higher learning
- math, music, advanced social skills
under major development
Behavioral Science
Findings

• Adolescents differ from adults and/or children in three important ways:
  ✓ *self-regulation* in emotionally charged contexts
  ✓ *heightened sensitivity* to contextual influences
  ✓ less ability to make judgments that require *future orientation*

• Cognitive tendencies are associated with biological immaturity of the brain and with an imbalance among developing brain systems
“Incorrigibility is inconsistent with youth.”

- Miller majority opinion
Capacity + Environment = Developmental Path

- Holds for both adolescence and early adulthood
- Positive adolescent development related to:
  - Parent or parent figure
  - Positive peers
  - Opportunities for decision making/critical thinking
- Juvenile justice interventions are responsible for creating positive development as well as ensuring public safety
- Being held accountable for wrongdoing and accepting responsibility in a process perceived as fair promotes healthy moral development and legal socialization
- Conversely, being held accountable and punished in a process perceived as unfair can reinforce social disaffection and antisocial behavior
The current juvenile justice system needs to be reoriented toward a more developmental and less deficit-focused and retributive model.
Goals of the System

- Promoting Accountability
- Ensuring Fairness
- Preventing Re-offending
Recommendations

- Create multi-stakeholder task forces
- Strengthen the Office of Juvenile Justice and Delinquency Prevention
- Promote research
- Improve data
Pathways to Desistance Study
MacArthur Research Network on Adolescent Development and Juvenile Justice

- Interdisciplinary group of researchers and practitioners (1997)
- Goal: Develop research agenda to inform and improve juvenile justice processes
- Major topics: competence/culpability, risk of offending, and amenability
- Pathways to Desistance study addresses the last two topics
Supported by

- Office of Juvenile Justice & Delinquency Prevention
- National Institute of Justice
- John D. & Catherine T. MacArthur Foundation
- National Institute on Drug Abuse
- Pennsylvania Commission on Crime & Delinquency
- Arizona Governor’s Justice Commission
- Robert Wood Johnson Foundation
- William Penn Foundation
- William T. Grant Foundation
Working Group Members

Edward Mulvey
Laurence Steinberg
Elizabeth Cauffman
Laurie Chassin
George Knight
Carol Schubert
Sandra Losoya
Robert Brame
Jeffrey Fagan
Alex Piquero
Burglary age-arrest curves

Arrests/100,000

1,000

800

600

400

200

0

1990

2010

2000

Age

10

20

30

40

50

60

70
Reasons for the study

- Richer information about serious adolescent offenders
- Picture of the desistance process
  - Individual maturation
  - Life changes
  - Systems involvement
- Improved practice and policy in juvenile justice
  - Risk assessment
  - Targeted interventions and sanctions
Study design

- Two sites: Philadelphia and Phoenix
- Enroll serious adolescent offenders
  - 1,354 felony offenders, aged 14 -18
  - Females and adult transfer cases
- Regular interviews over seven years
  - Initial interviews
  - Time point interviews (background characteristics, psychological mediators, family context, relationships, community context, life changes)
  - Release interviews
- Other sources of information
  - Collateral interviews
  - Official records
Who are these adolescents?

- At Enrollment
  - 16 years old on average
  - Sample is 86% male
  - Average of three prior court appearances, but 32% had no prior petitions to court
- Ethnically diverse
What we look at

Background Characteristics
- Personal characteristics (e.g. family, marital relationships)
- Academic achievement and commitment
- Routine activities
- Offense history
- Alcohol and drug use/abuse
- Exposure to violence
- Psychopathy
- Emotional reactivity
- Acculturation
- Personality

Psychological Mediators
- Psychological development
- Mental health symptoms/threat control
- Head injury
- Use of social services
- Perceptions of opportunity
- Perceptions of procedural justice
- Perceived thrill of doing crime
- Moral disengagement
- Religious orientation
- Costs and rewards of offending

Family Context
- Parental Monitoring
- Parental Relationships
- Parent orientation

Personal Relationships
- Relationships with romantic partner & friends
- Peer delinquency and gang involvement
- Contact with caring adult

Community Context
- Neighborhood conditions
- Community involvement
- Personal capital and social ties

Life Changes
Monthly data available regarding:
- Living arrangements
- School involvement
- Legal involvement
- Work
- Romantic relationships
- Social service involvement/sanctions

Family Context
- Parental Monitoring
- Parental Relationships
- Parent orientation

Personal Relationships
- Relationships with romantic partner & friends
- Peer delinquency and gang involvement
- Contact with caring adult

Community Context
- Neighborhood conditions
- Community involvement
- Personal capital and social ties

Life Changes
Monthly data available regarding:
- Living arrangements
- School involvement
- Legal involvement
- Work
- Romantic relationships
- Social service involvement/sanctions
## Living situation calendar

<table>
<thead>
<tr>
<th>Subject 1</th>
<th>Month 1</th>
<th>Month 2</th>
<th>Month 3</th>
<th>Month 4</th>
<th>Month 5</th>
<th>Month 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>900 West Huntington</td>
<td>St Gabe’s Hall</td>
<td>900 West Huntington</td>
<td>St Gabe’s Hall</td>
<td>Vision Quest</td>
<td>Youth Forestry Camp</td>
<td></td>
</tr>
<tr>
<td>2429 W. Augusta</td>
<td>Madison Street Jail</td>
<td>1808 S. Wilmot</td>
<td>1808 S. Wilmot</td>
<td>1808 S. Wilmot</td>
<td>Tucson Prison</td>
<td></td>
</tr>
<tr>
<td>5050 Master Norris</td>
<td>4th and Norris</td>
<td>4th and Norris</td>
<td>4th and Norris</td>
<td>House of Corrections</td>
<td>House of Corrections</td>
<td></td>
</tr>
</tbody>
</table>

Subject 1: Gabe’s Hall, Month 1: 900 West Huntington, Month 2: St Gabe’s Hall, Month 3: 900 West Huntington, Month 4: St Gabe’s Hall, Month 5: Vision Quest, Month 6: Youth Forestry Camp.

Subject 2: Madison Street Jail, Month 1: 2429 W. Augusta, Month 2: 1808 S. Wilmot, Month 3: 1808 S. Wilmot, Month 4: 1808 S. Wilmot, Month 5: Tucson Prison, Month 6: Tucson Prison.

Subject 3: 4th and Norris, Month 1: 5050 Master Norris, Month 2: 4th and Norris, Month 3: 4th and Norris, Month 4: 4th and Norris, Month 5: House of Corrections, Month 6: House of Corrections.
Progress so far

- Average of 90% of interviews completed at each time point
- Over 21,000 interviews completed
- Current efforts primarily on analysis and dissemination
  - bulletins/blogs/presentations to practitioners
  - academic papers; book in progress
  - marketing of the data sets to academics and applied researchers in juvenile justice
Examples of topics being investigated

- Procedural justice
- Perceptions of risk/benefit of crime
- Psychosocial maturity and criminal offending
- Effects of substance use treatment
- Acculturation/enculturation
- Family functioning
- Perceptions of opportunities
- Neighborhood effects
- Service Provision/Institutional Care
Most of even the most serious adolescent offenders reduce their offending as they age.
Officially Reported Re-arrests

Prevalence of Arrest by Year
(% of sample with an arrest)
Number of arrests per days in the community. Ex: 1 arrest in 121 days in community = .008, 1 arrest in 65 days in the community = .015, 3 arrests in 183 days in community = .016
Median Severity Ranking for Arrests across time
(within month)

1 = status offense, 2=misdemeanor, 3 = possession of narcotics (excluding glue and marijuana), 4 = felony, not part 1, 5=major property felonies, 6=burglary, 7=drug felony, 2nd degree sex offense, 8 =felonious assault, felony w/ weapon 9 =murder, rape, arson
Patterns of Self-Reported Offending


Self-reported Offending

- **22 items**
  -destroyed/damaged property
  -entered building to steal
  -received/sold stolen property
  -stolen car/motorcycle
  -Sold other illegal drugs
  -drove drunk or high
  -forced someone to have sex
  -shot someone (where bullet hit)
  -took by force using weapon
  -beat someone-doctor needed
  -beaten up someone (gang)
  -set fire to house/building/car
  -shoplifted
  -used checks/credit card illegally
  -sold marijuana
  -carjacked someone
  -was paid to have sex
  -killed someone
  -shot at someone (pulled trigger)
  -took by force no weapon
  -been in fight
  -carried a gun

- **Calculate a “variety” score for each recall period**
Self-reported offending
7 year follow-up period – only males – controlling for time on street

High stable
10%

Drop-off
21%

Lowest
26%

Low rising
12%

Low stable
31%
Proportion of each offending pattern group in each crime group

- Violent Crime
- Property Crime
- Weapons Charge
- Drug Charge
- Other

Legend:
- Persisters
- Late Onset
- Desisters
- Mid stable
- Low stable
The juvenile justice system relies heavily on institutions and they are highly variable in their performance.
Institutional placements over 84 months

Subject 4716

Adult Setting 3

Juvenile Setting 2

Treatment Facility 1

Community 0

Age 17
## Institutional placements over 84 months

### Subject 691

<table>
<thead>
<tr>
<th>Setting</th>
<th>Months Enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Setting</td>
<td>3</td>
</tr>
<tr>
<td>Juvenile Setting</td>
<td>2</td>
</tr>
<tr>
<td>Treatment Facility</td>
<td>1</td>
</tr>
<tr>
<td>Community</td>
<td>0</td>
</tr>
</tbody>
</table>

**Age 15**
Placememt/Treatment


Probation vs. placement

Unadjusted comparison of re-arrest rate

Mean Yearly Rate of Re-Arrest, by Placement Status

- Probation: 0.63
- Placement: 1.20
Propensity score matching

- Two step process:
  - A propensity score is calculated for each case. It is the predicted probability that you get placed given all of the background characteristics considered
  - Take each placed case and match it to one or more probation case with similar propensity score
- We then can look to see if the placed group looks similar to the matched probation group on a variety of characteristics that might affect the outcome
- If the groups look alike, we can attribute any difference in the outcomes to the fact that they were placed
Treatment effect of placement

Matched groups

Mean Yearly Rate of Re-Arrest, by Placement Status After Matching

No significant differences between groups in rate of re-arrest
Do longer institutional stays reduce re-arrest?

**Approach**

- Length of stay is broken up into discrete “doses”

- Methods to get similar cases across different levels of the “dose”
  - 65 of 66 variables show no difference among the groups, meaning we can rule them out as causes of differences in outcomes

- *Response Curve* is estimated
Dose-response curve
3 month intervals as doses

Expected Rate of Re-Arrest,
by 3 mo. Dose Category

rate

0.0
0.5
1.0
1.5
2.0
2.5
3.0

0-3 3-6 6-9 9-12 > 12
Do these adolescents get appropriate services?


Approach

- Identified two “treatable” types of problems
  - Mood/anxiety problems
    - ✓ mental health-related treatment: individual sessions or treatment on a mental health unit
  - Substance use problems
    - ✓ drug and alcohol services
- Focus on four most common settings
- Tested findings with controls for site, gender, ethnicity, days in setting
Increase in likelihood of receiving mental health treatment for those with a mood/anxiety problem compared to those without a mood/anxiety problem.
Increase in likelihood of receiving substance use treatment for those with a substance use problem compared to those without a substance use problem.

- Detention: 5.4 times
- Jail/prison: 2.6 times
- YDC/ADJC: 4.8 times
- Contracted Res: No difference
**Are these adolescents getting substance use services?**

Looking at those adolescents with a diagnosed substance use problem*

<table>
<thead>
<tr>
<th></th>
<th>Adult Setting</th>
<th>Juvenile Setting</th>
<th>Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>% with service</td>
<td>55%</td>
<td>61%</td>
<td>30%</td>
</tr>
<tr>
<td>Average intensity of sessions</td>
<td>1 every 13 days</td>
<td>1 every 3 days</td>
<td>1 every 47 days</td>
</tr>
</tbody>
</table>

* Diagnosed at baseline as present in the past year
Does substance use treatment work if given to these adolescents?

**Approach:**
- Within individual, does treatment involvement in one time period affect substance use and offending in the next time period?
- Test of treatment as actually provided
- Controlling for “street time”, drug testing, and characteristics predicting who gets treatment

**Findings:**
- Significant short term (6-month) effects of treatment on
  - Marijuana use
  - Offending
  - Alcohol reductions
- Family involvement and duration of treatment needed to get effect
- Not a one-shot “inoculation”
Institutional Environments

Do institutional environments matter?

Approach

- Examine release interviews
- Data:
  - Adolescent reports about a particular institutional experience
  - \( n = 1,158 \) interviews
- Calculate eight dimensions of the institutional stay
  - Safety
  - Harshness
  - Fairness
  - Services
  - Institutional Order
  - Caring Adult
  - Antisocial Peers
  - Re-entry planning
- Assess if differences in these dimensions relate to subsequent community outcomes in year after release
  - System involvement
  - Self reported antisocial activity
- Control for risk factors related to offending
Do institutional environments matter?

Findings

- Certain dimensions matter for certain outcomes
  - Services and re-entry planning significantly reduce the chances of later systems involvement.
  - Low harshness, fewer antisocial peers, and high institutional order decrease the probability of self-reported antisocial activity.

- These relationships don’t differ by facility type.
Is a generally more positive institutional experience related to better outcomes?

System Involvement Outcome

Even after controlling for background characteristics, there is a 35%-49% reduction in the probability of system involvement in the next year.
Points to remember

- This is a sample of serious adolescent offenders. Results aren’t applicable across the whole juvenile justice system.

- Outcome measures rely on self reports, but arrests and official records support the results so far.

- The study was conducted in only two cities. While there is considerable variability across cities, the outcomes regarding development over time appear consistent in each site.
Some General Implications

- Support for “line drawing” regarding adolescence
  - Mitigation regarding culpability
  - Possibility for change

- Support for expanded use of “bounded” discretion; categorical, offense-based policies are inefficient and ineffective

- Distinction between accountability and punishment

- Importance of perceived fairness and its link to disproportionate minority contact
Some Implications

- Individualization not likely in current structure
- Families matter, but are not integrated into the juvenile justice interventions or process
- Community-based services are underutilized
  - Not a clear vision of what they should be
  - It still pays to improve institutions
- The severe limitation on data quality in this system will produce a call for “reform” before too long
Contact Information

Edward P. Mulvey
mulveyep@upmc.edu

Carol A. Schubert
schubertca@upmc.edu

www.pathwaysstudy.pitt.edu