EXPLORING

WHY CHESS WORKS

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PROPORTED BENEFITS OF CHESS

Cognitive Benefits
- Improved Test Scores
- Numerical Skills
- Verbal Skills
- Reading/Reading Comprehension
- Science

General Educational Benefits
- Self-esteem
- Focus and Concentration
- Impulse Control
- Attendance
HOW IT ALL STARTED
Consulting

• Research
  – Surprising connections... reading, for example (Margulies, 1992).
  – Increased math problem solving and comprehension proportionate to the amount of chess in the curriculum (Gaudreau, 1992).
MISSING LINK

- Correlational & anecdotal research tells us that changes in one variable are associated with changes in another.

So, chess is associated with improvements in educational, behavioral, and cognitive skills.

- BUT, correlation does not mean causation.

Something else could cause both (e.g., relationship with coach, more time at school).
WHAT’S MISSING

Small sample sizes

No control group

Anecdotal—abounds, beyond coincidence to us all

Varied chess training
  (from play to formal, skill of coach)

Few covariates accounted for
  – Relationship with coach
  – Extra educational time
  – “Anti-drug” value
  – Any game or puzzle
MISSING LINK

• Why/how does chess have its impact?

• Narrowing down the mechanism(s) of change makes the case for chess in schools that much stronger.

• We wondered whether chess has a direct impact...as in the chess content teaches specific reading, math or science skills OR an indirect impact...as in learning chess impacts something else (executive functions) which impacts academic performance.
RESEARCH TEAM

- **Dr. Michelle Ellefson**  
  Cambridge University, Executive Functions, Curriculum development

- **Dr. Zewelanji Serpell**  
  Virginia State University, Executive Functions, School-based research in urban settings

- **Dr. Teresa Parr**  
  Ashley Parr, LLC, Curriculum Development, Clinical Psychology, Child Development, School-based services

- **GM Maurice Ashley**  
  Ashley Parr, LLC, Curriculum Development, Chess expertise, Chess training in urban settings
EXECUTIVE CONTROL

Umbrella term

Includes:

- Ability to reason
- Plan ahead
- Multi-task
- Switch between tasks
- Sustain attention
- Delay gratification
- Make complex decisions
- Metacognition

Metacognition:

“Thinking about thinking”
Active control over the process of thinking that is used in learning situations

How to approach a task, monitoring comprehension, managing distractions, evaluating progress, etc.
INHIBITION VS. IMPULSIVITY

• The ability to stop one’s behavior at the appropriate time.

• Chess comparisons:
  – ‘Touch-move’ rule
  – Thinking 3 or more moves ahead
  – Sacrifices
  – Immediate feedback for blunders
METHODS

• Large Mid-Atlantic school system

• Pre-test

• Wait-list control group

• Three-years
EXPERIMENTAL MANIPULATION

MATCH CURRICULUM

Maurice Ashley Teaches Champions
By GM Ashley and Dr. Parr

Disaggregated Learning: Complex subjects are broken down into their constituent parts and studied in depth before being taught as a whole. So, for example, participants will work on gaining fluency with each piece before playing a full game (e.g., Pawn Mower). Used successfully by GM Ashley for over 20 years.

Connections between chess and other subjects

Activities to appeal to those with different interests/learning styles

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FOR MORE INFORMATION

• Our Blog:
  blog.mauriceashleychampions.com

• USCF: Chess Research Bibliography
  (main.uschess.org/content/view/7866/131)

• Chess for Success: Using an Old Game to Build New Strengths (GM Maurice Ashley, Scholastic, 2005).

OUR WEBSITES:
WWW.MAURICEASHLEYCHAMPIONS.COM
WWW.PAWNMOWER.COM
WWW.CHESTRADINGCARDS.COM

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