



LINKED LEARNING CONVENTION | ANAHEIM, CA | FEB. 12-14

Why Linked Learning Works: Insights from Neuroscience



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#LinkedLearning | #LLCON2018

INTRODUCTION

Students in Linked Learning settings outperform peers in traditional high schools on key indicators

STUDENTS GAIN CAREER AND LIFE SKILLS

Percentage point differences between Linked Learning students and comparison students.



COLLABORATION

- +20 Achieve a shared goal
- +21 Working with people
- +22 Present to a group



PROFESSIONALISM

- +20 Expectations for behavior
- +22 Create a resume
- +12 Responsible or work quality



MINDSET

- +8 Set goals for school success
- +16 Can learn hard content
- +10 Can reach goals

THE LINKED LEARNING ADVANTAGE

Linked Learning students demonstrated increased academic success in high school.



+5.3

More likely to graduate high school*

+8.9

More credits earned by the end of high school



+0.9

More college preparatory semester courses

+5.3

More likely to be classified as ready or conditionally ready for college in English Language Arts*

*in percentage points



More Linked Learning students reported high school as influential on their postsecondary studies.

+11

Took high school courses that sparked interest*

+11

Encouraged by counselor or other adult in high school*

+14

Spent time working in the field*

*in percentage points



Linked Learning students reported higher job quality.



*in percentage points

ACHIEVING EQUITY

+15.2

More credits

African American students in Linked Learning certified pathways **earn more credits** than in traditional schools

+12.4

Percentage points

Among African American students enrolled in a postsecondary institution, those who graduated from a certified Linked Learning pathway were **more likely to attend a four-year college** than similar peers

ACHIEVING EQUITY

+11.7

More credits

Latino students in certified pathways were **less likely to drop out** and **more likely to accumulate credits** than peers in traditional schools

+11.7

More credits

English learners in certified Linked Learning pathways **earn more credits** than peers in traditional schools

+1

College prep req

English learners in certified pathways **complete one more college prep requirement** than peers in traditional schools

INTRODUCTION

What is the secret sauce?

- An **approach**, not a program?
- About college **and** career?
- For **all** students, regardless of achievement level?

INTRODUCTION

What is the secret sauce?

The Four Components?



+



+



+



Rigorous
Academics

Career
Technical
Training

Work-
based
Learning

Comprehensive
Support
Services

INTRODUCTION

Why do students in Linked Learning settings outperform peers in traditional high schools on key indicators?

Insights from social science

Culture Against Man (Henry 1963)

Helpful, but it doesn't completely answer the why question

INTRODUCTION

Why do students in Linked Learning settings outperform peers in traditional high schools on key indicators?

Insights from neuroscience

Brain Rules: 12 Principles for Surviving and Thriving at Work, Home, and School (Medina 2008)

“there is no greater anti-brain environment than the classroom”

BRAIN RULE #1: SURVIVAL

SURVIVAL

The human brain evolved, too

“the brain is a survival organ. It is designed to solve problems related to surviving...We were not the strongest on the planet but we developed the strongest brains, the key to our survival”

Linked Learning emphasizes Problem-Based Learning

SURVIVAL

Raymond Cattell

fluid intelligence

ability to see relationships, analyze patterns, solve problems

crystallized intelligence

ability to apply knowledge, skills, experience to a problem

Linked Learning encourages and rewards these abilities

SURVIVAL

Social Learning, Collaboration

“our ability to solve problems, learn from mistakes, and create alliances with other people helps us survive. We took over the world by learning to cooperate and forming teams with our neighbors”

Linked Learning routinely groups students to complete projects

BRAIN RULE #2: WIRING

WIRING

Every brain is wired differently and learns differently

“No two people have the same brain, not even twins. Every student’s brain... is wired differently...You can either accede to it or ignore it. The current system of education ignores it by having grade structures based on age...Our school system ignores the fact that every brain is wired differently. We wrongly assume every brain is the same”

Linked Learning respects diversity by providing comprehensive supports

WIRING

Transportation system analogy

Major highways = major neural trunks (identical in all humans)

branch into

Secondary highways > Boulevards > Alleyways (unique to individuals)

Linked Learning encourages and rewards creative thought resulting from unique wiring

BRAIN RULE #3: ATTENTION

ATTENTION

We don't pay attention to boring things

Negative correlation between boredom and learning?

Negative correlation between relevance and learning?

“Why do I have to learn this?”

Progressive education and child interest

Linked Learning situates learning within a realm of students' interest. Work-Based Learning provides relevance.

BRAIN RULE #4: MEMORY

MEMORY

Repeat to remember. Remember to repeat

John Medina's 'dream school' is "one that repeats what was learned, not at home, but during the school day, 90-120 minutes after the initial learning occurred"

Linked Learning projects encourage students to recall and apply disciplinary principles and practical skills.

MEMORY

If you don't use it, you lose it!

'Just in time' learning

Cross-disciplinary learning

Linked Learning projects encourage students to recall and apply disciplinary principles and practical skills.

MEMORY

The brain assimilates meaning before detail

Learning in context

Application of learning

Linked Learning's Work-Based Learning approach provides context and application for disciplinary principles and skills.

BRAIN RULE #5: THE SENSES

THE SENSES

Stimulate more of the senses

“Those in multisensory environments always do better than those in unisensory environments. They have more recall with better resolution that lasts longer, evident even 20 years later”

Linked Learning’s Work-Based Learning immerses students in multi-sensory learning experiences.

BRAIN RULE #6: GENDER

GENDER

Male and female brains are different

“Having a team that simultaneously understood the gist and details of a given stressful situation helped us conquer the world”

Gist v. Details

Larry Cahill, Turhan Canli

Linked Learning’s Project-Based Learning typically teams boys and girls together to solve problems.

BRAIN RULE #7: EXPLORATION

EXPLORATION

We are powerful and natural explorers

“Babies are the model of how we learn—not by passive reaction to the environment but by active testing through observation, hypothesis, experiment, and conclusion. Babies methodically do experiments on objects, for example, to see what they will do....the desire to explore never leaves us despite the classrooms and cubicles we are stuffed into”

Linked Learning invites students to explore their world

EXPLORATION

Foundations of educational psychology

Connectionism (Edward Thorndike)

Experimentalism (John Dewey)

The Project Method (William Heard Kilpatrick)

Linked Learning invites students to experiment through real-world projects

CONCLUSION

CONCLUSION

Linked Learning works because it appropriates the ‘Brain Rules’

1. Survival
2. Wiring
3. Attention
4. Memory
5. Senses
6. Gender
7. Exploration

Greater intentionality should produce greater results



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Thank you!

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