Minds On Learning

By Jake Whiddon

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Who are you?

Who am I?

Learner Autonomy

/dʒeɪk ˈwɪdən/

China, Thailand, Cambodia,
Japan, Korea, Myanmar

上海
武汉
西安

15

TRINITY
COLLEGE LONDON

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What are we doing today?

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The 4 Pillars

Active
"Minds On"

Educational
Apps

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But first.....let's play a game

How **engaging** was the activity?

How much **thinking** was needed?

Was there any **meaningful** learning?

Was there any **social interaction**?

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BIOGRAPHY
learn more about Kathy

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Dr Kathy Hirsh Pasek

What are the 4 Pillars of the Science of Learning?

A_ti_e
Lear_in_

M__n__gf_l
Learning

Eng____ment
in the L___ning
Pro____

S___al
Int____ction

Active
Learning

Meaningful
Learning

Engagement
in the Learning
Process

Social
Interaction

Active Learning

Active learning means that the learner plays an active "minds-on" role in knowledge building activity.

Engagement in the Learning Process

Social Interaction

Engagement means the ability to **stay on task** without distraction. Engagement is reinforced by **extrinsic and intrinsic motivation,** meaningful feedback, and with few unimportant interruptions that do not enhance the overall learning experience.

Engagement in the Learning Process
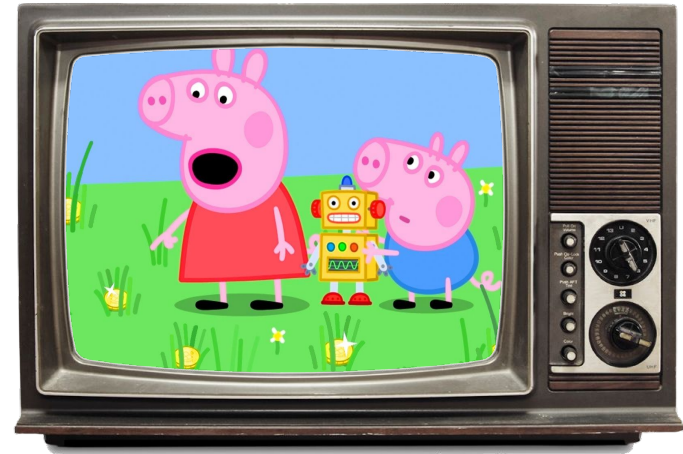
Social Interaction

Engagement

Does the activity keep the s**tudent on task**?

What **percentage** of adults can text and drive effectively without **experiencing cognitive overload?**

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Engagement is about keeping student on task

Distraction is the enemy of engagement

In educational apps...

we avoid distractions and keep learners on task though short motivating activities

Get me that big cat.

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A balancing act between active & engagement

Active Learning

Meaningful Learning

Meaningful learning allows the learner to connect new material to existing knowledge and experiences while having a purpose to apply what they have learned.

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Meaningful Learning

"People who learn to **extract the key ideas** from new material and organize them into a **mental model** and **connect that model to prior knowledge** show an advantage in learning complex mastery" Brown 2014

In other words……connect personally to the learning!

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Meaningful Learning

Rote Learning leads to a shallow understanding of new language

Setting contexts
Personalizing
Opinion questions
Relevant topics
Culturally specific

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Active
Learning

Meaningful
Learning

Social interaction allows the learner to interact with others, in high-quality ways, around the learning experience to apply knowledge and gain meaning.

Social
Interaction

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Social Interaction

Nine month-old infants **succeeded in learning** only when this task included the presentation of a face looking at the stimuli to be learned and a voice saying,

"Hi, baby, look at this!"

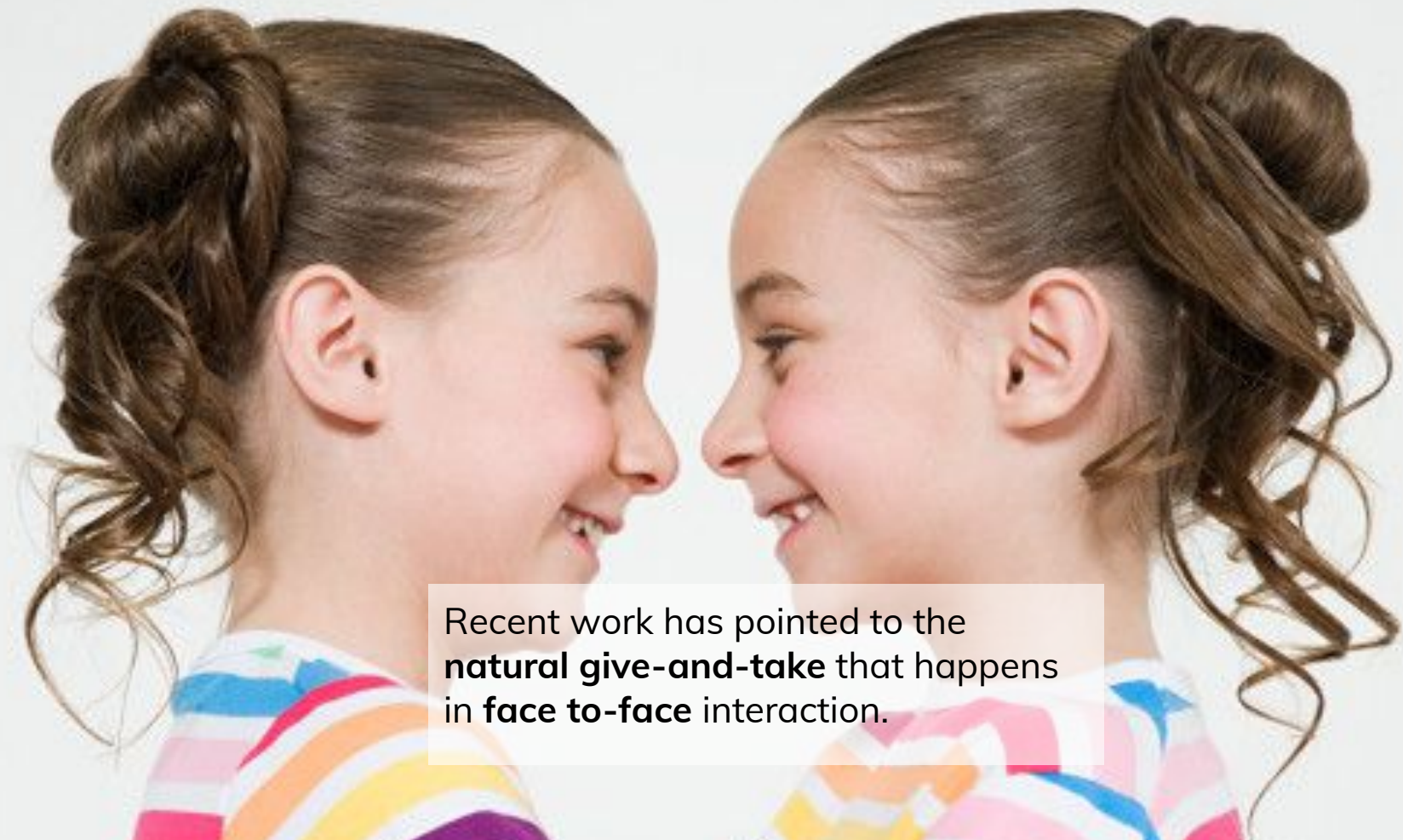They failed at the same task without this support

(Wu, Gopnik, Richardson, & Kirkham, 2011).

Social Interaction

According to **Vygotsky** the **social dialogs** preschoolers engage in are **crucial** for advancing their **cognitive development.**

Recent work has pointed to the **natural give-and-take** that happens in **face to-face** interaction.

Social Interaction

In fact, when social interaction was established in an electronic format (i.e., **via Skype or a similar live video chat program)**,

children **learned equally well** from a real person and a "digitally live" on-screen interaction
 (Roseberry et al., 2014).

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Active
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Active Learning

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Engagement in the Learning Process

Social Interaction

cat   d_g

r__b_t   hare

z_b__   h_rs_

ch__p__zee bonobo

cat   dog

rabbit   hare

zebra   horse

chimpanzee   bonobo

cat   d_g

r__b_t   hare

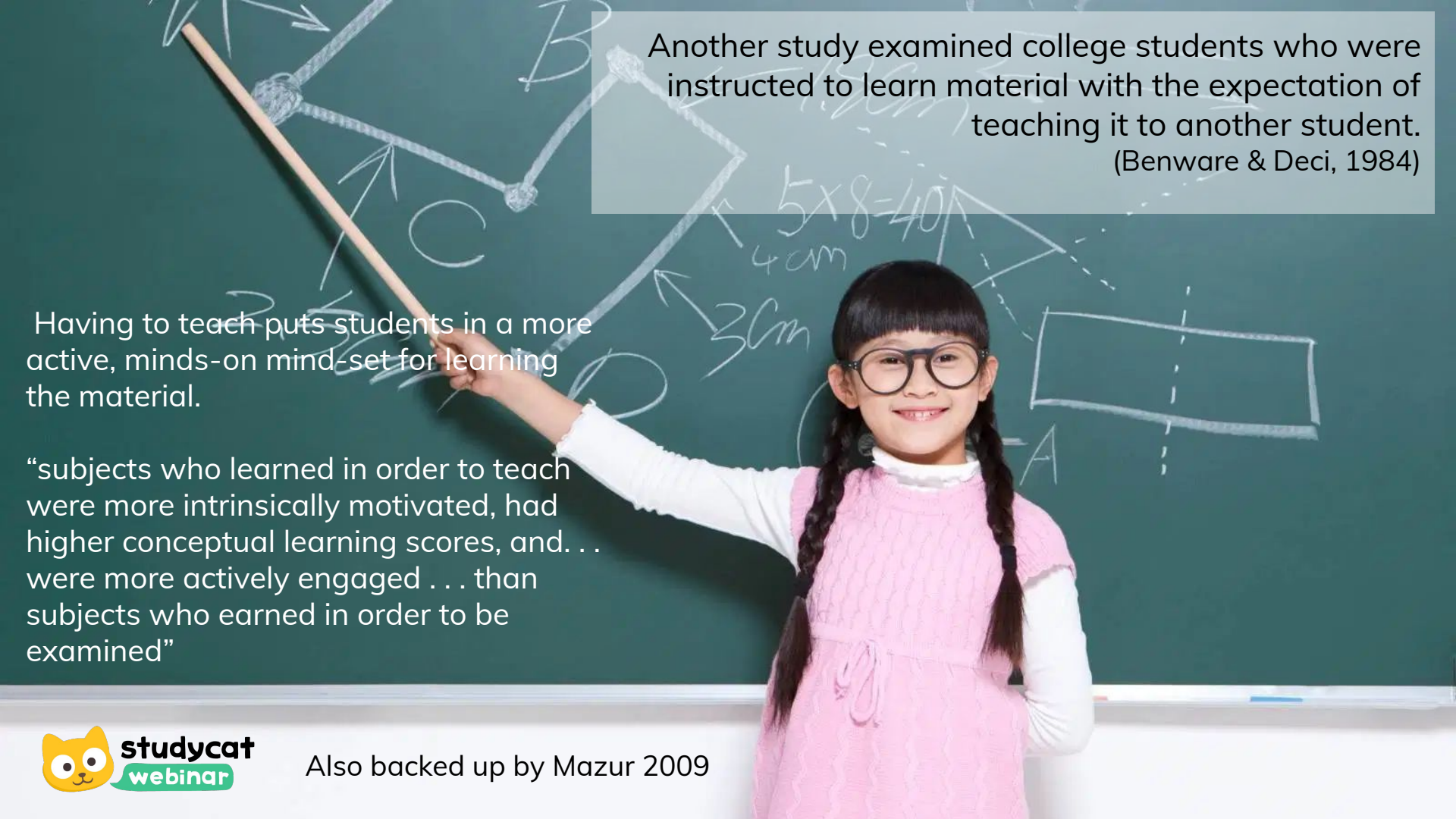z_b__   h_rs_

ch__p__zee   bonobo

If adults are presented with a word pair in which one of the words has a few letters missing and are asked to generate the full word, they will remember the pair better than if they passively read it

(Hirshman & Bjork, 1988)

What is "Minds On" here?

Another study examined college students who were instructed to learn material with the expectation of teaching it to another student.
(Benware & Deci, 1984)

Having to teach puts students in a more active, minds-on mind-set for learning the material.

"subjects who learned in order to teach were more intrinsically motivated, had higher conceptual learning scores, and. . . were more actively engaged . . . than subjects who earned in order to be examined"

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Also backed up by Mazur 2009

Minds on reading

When 5- to 6-year-old children **actively manipulated an object** while **hearing a new label** and then heard that label again, motor areas of their brains were more likely to be activated upon subsequent viewing compared with when they were only allowed to passively watch an experimenter manipulate an object (James & Swain, 2011).

Drawing the chemical reactions after the experiment

Students who drew outperformed those who only did the experiment

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Students who stop, start, rewind, and repeat videos do better than those who just watched the video passively

Active learning also benefits vocabulary learning.
When 3-year-old children **figured out** the referent of a novel label through a
process of elimination, they **showed better retention** of that label than
children who were explicitly and directly told the label
(Zosh, Brinster 2013)

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Minds Off

Minds On

Drawing new words

Using a video

Peer teaching

CLIL

TBL

Taking notes
Doing a puzzle

Flashcard Drills

Tapping on a tablet

A gap fill

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Minds Off

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In Apps

Are they just swiping or tapping?

Minds On learning implies the activities require a level of thinking or intellectual manipulation

Tapping something continuously is "Minds off"

Moving a piece of a puzzle would be "Minds on"

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One more thing to add.....

Scaffolded Exploration

"Scaffolding is a pedagogical structure that helps guide children to accomplish a task that would not be able to accomplish by themselves"

Wood, Bruner, & Ross, 1976

Direct instruction appears to do better than just **free play**

And...... **Guided Discovery** with an adult results in better learning overall

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Scaffolded Exploration

For certain types of apps, **external scaffolding** can **transform children's experience** from relatively haphazard poking and swiping to a **guided exploration of age-appropriate content.**

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So.....let's look at some apps

	Active	Engagement	Meaningful	Social	Scaffolding
High					
Med					
Low					

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Toca Hair Salon

	Active	Engaging	Meaningful	Social	Scaffolding
High					
Med					
Low					

Toca Hair Salon

	Active	Engaging	Meaningful	Social	Scaffolding
High	■				
Med	■	■	■		
Low	■	■	■	■	

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Phonics App

	Active	Engaging	Meaningful	Social	Scaffolding
High					
Med					
Low					

	Active	Engaging	Meaningful	Social	Scaffolding
High					
Med					
Low					

	Active	Engaging	Meaningful	Social	Scaffolding
High	██	██			██
Med	██	██			██
Low	██	██	██	██	██

Kids Coding

	Active	Engaging	Meaningful	Social	Scaffolding
High					
Med					
Low					

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All of this applies to our classrooms too!

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Who can remember?

Active
Learning

Meaningful
Learning

Engagement
in the Learning
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Social
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