

By **Li Bian**libian@mit.edu





## Index

- Vision
- What is Kiwi?
- What Kiwi Can Do?
- How Kiwi Works?
- Why Kiwi?
- Next Steps



## A new way of learning: teaching

#### inspiration:

Monkey King Chinese Project: Monkey king teaching 'Chinese' to kids in an reverse manner, by letting kids teach Monkey king 'English'

'You cannot teach a man anything; you can only help him find it within himself.'
- Galileo Galilei



A new way of learning: teaching

A new way of understanding: **forming mental images** 

Complexity is best mastered by seeing the whole picture in rich details; that expertise consists mainly of vivid mental pictures; that working knowledge is best aided by precise reminders within view or reach.

- Bob Stein, stein@visibone.com



A new way of learning: teaching

A new way of understanding: **forming mental images** 

Next generation of educational products:

#### aware & smart

They don't do windows -- but the next generation of AI applications can teach, tutor, and even grade essays."

- Kristen Kennedy, Artificial Intelligence, Technology & Learning (Nov 2002)



A new way of learning: teaching

A new way of understanding: **forming mental images** 

Next generation of educational products:

aware & smart



## Vision . Learning

Traditional Learning System: TV System

**Television** 

Lecturer

**Textbook** 

Computer

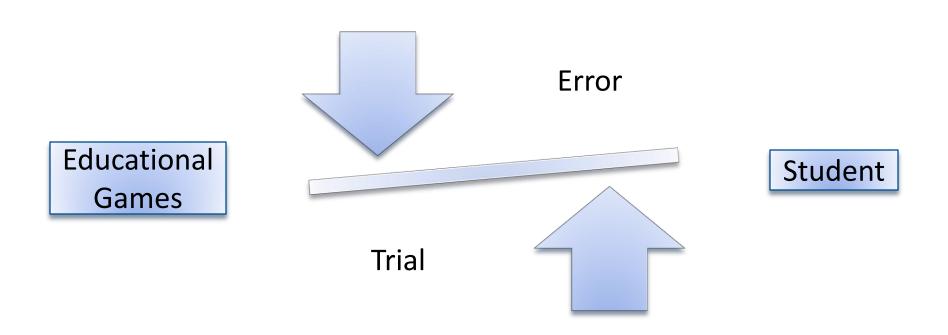
Knowledge goes on a one way trip

Student



# Vision . Learning

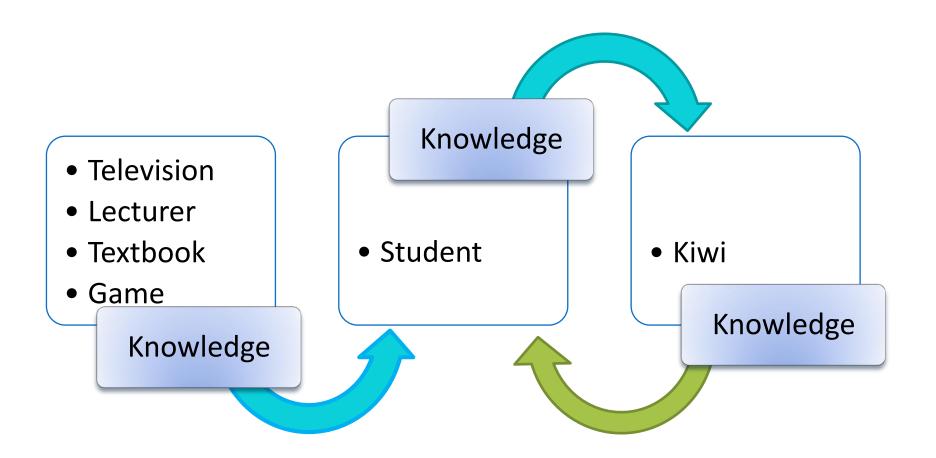
Traditional Learning System: Game System





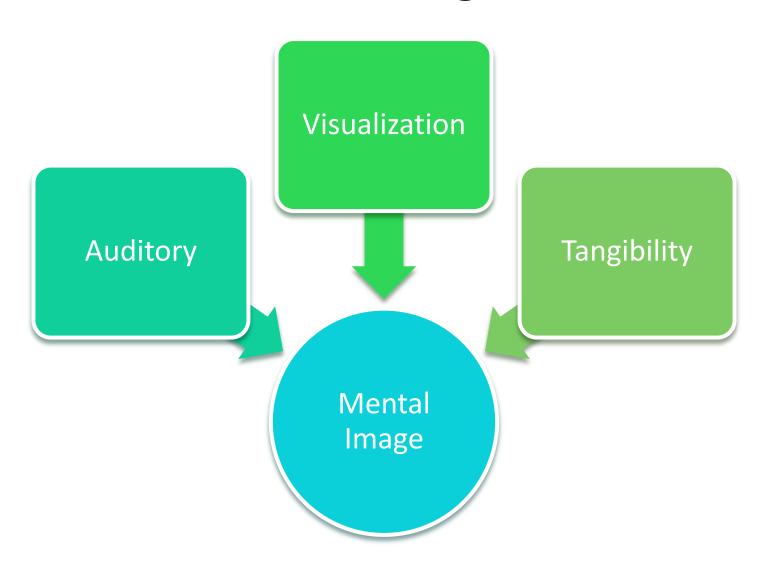
# Vision . Learning

Kiwi Learning System: Teaching



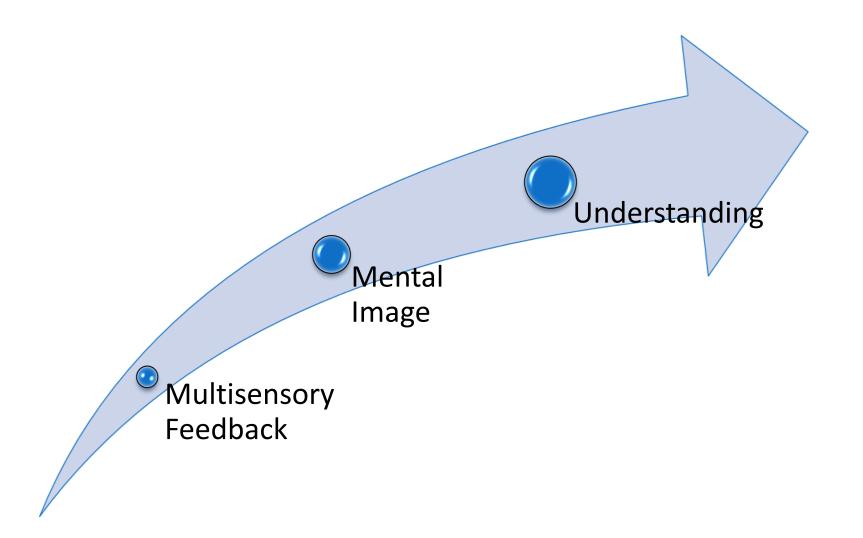


# Vision . Understanding





# Vision . Understanding





## **Vision** . Education Product

What makes a next generation Education Product successful?

→ Clever combination of

Knowledge
Instruction Design
Technology



#### What is Kiwi?

Kiwi is a digital pet that...

- survives and grows upon kid's feeding it with knowledge
- presents itself as a friend, a companion rather than a commanding teacher
- brings about the "humane" feel of stringent academic studying



#### What is Kiwi?

#### The kid feels that...

- I am collaborating with someone, not laboring for someone
- I am not conquering knowledge as a monster; I am exploring the colors of it
- I am responsible for a living being's life and health



1. Actively start a conversation with kids in a friendly manner

"friendly" in our social context means: nice, understanding, sensitive, showing sympathy etc.

"friendly" != "always happy"



- 1. Actively start a conversation with kids in a friendly manner
- 2. Intelligently collect information about kids' habits and interest

What is the kid's favorite class, sport, music, friend

What nickname does the kid like or hate to be called

What time does the kid like spending doing homework or playing games or taking nap?

What is the subject order in which the kid likes doing his/her homework?



- 1. Actively start a conversation with kids in a friendly manner
- 2. Intelligently collect information about kids' habits and interest
- **3.** Extract keywords in a conversation and behave contextually

use Common Sense Database



- 1. Actively start a conversation with kids in a friendly manner
- 2. Intelligently collect information about kids' habits and interest
- **3.** Extract keywords in a conversation and behave contextually
- 4. Present knowledge with Multimedia and rich Analogy
  Visual, Auditory, Tactile interfaces



- 1. Actively start a conversation with kids in a friendly manner
- Intelligently collect information about kids' habits and interest
- **3.** Extract keywords in a conversation and behave contextually
- 4. Present knowledge with Multimedia and rich Analogy
- 5. Enable the kids to connect and collaborate with friends

following the success of Web 2.0 where every user can be a source of knowledge; Kiwi as agents also learn from one another



- 1. Actively start a conversation with kids in a friendly manner
- 2. Intelligently collect information about kids' habits and interest
- **3.** Extract keywords in a conversation and behave contextually
- 4. Present knowledge with Multimedia and rich Analogy
- **5.** Enable the kids to connect and collaborate with friends
- **6.** Keep track of kids academic progress



## **How Kiwi Works?**











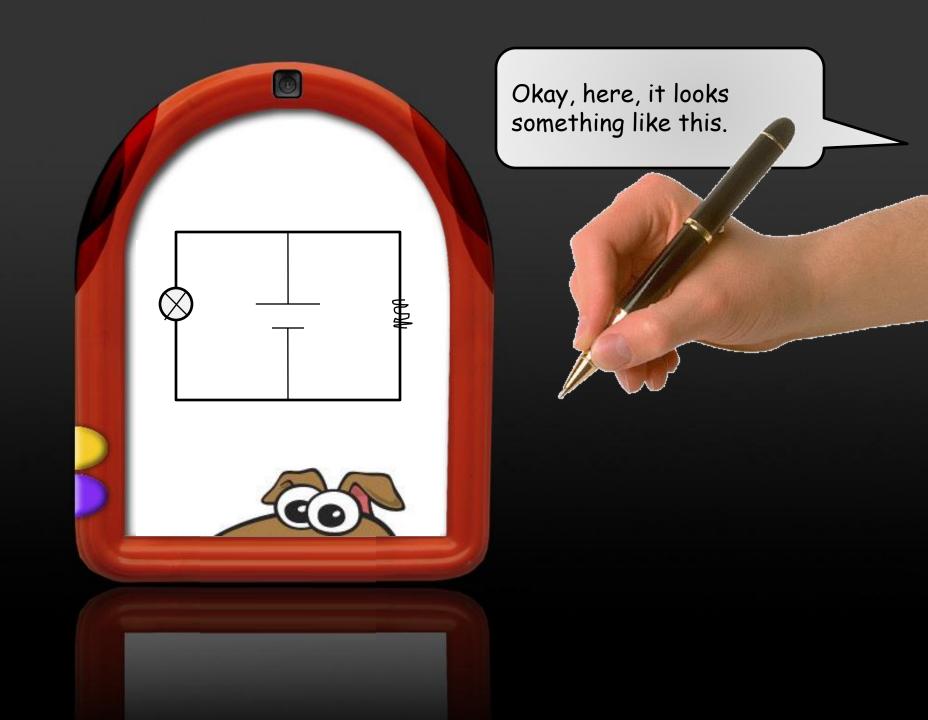


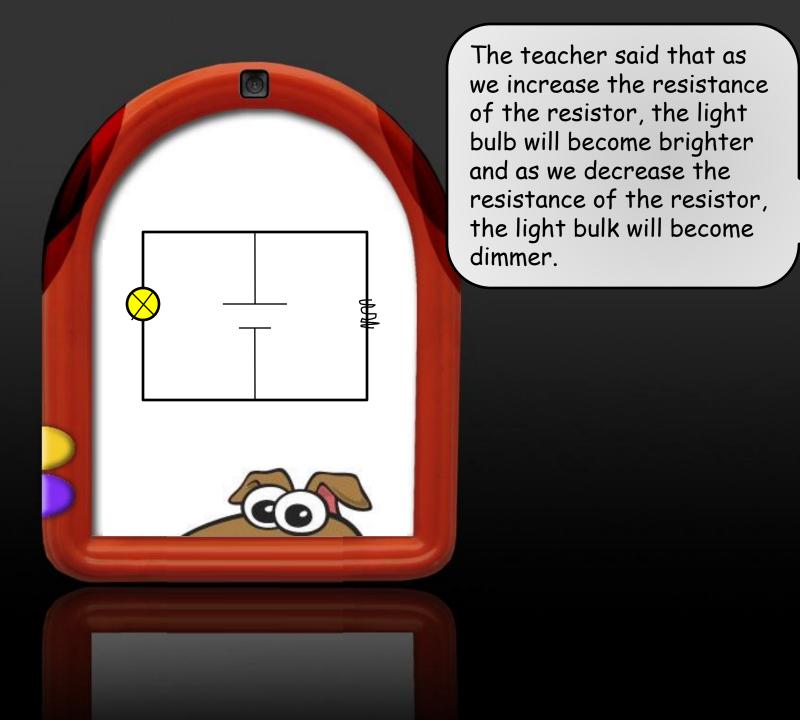


Hey don't Let's try to figure it out together.



Can you show me any circuit diagram your teacher might have drawn in class today?

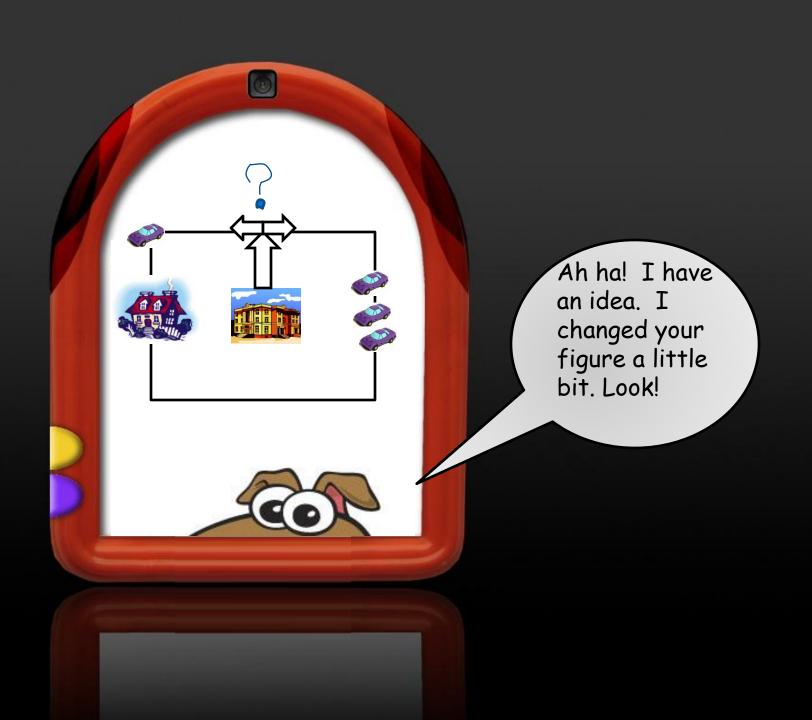








hmm...yea, it does look magic. Let's see what we can do about it...it is tough...let me think...







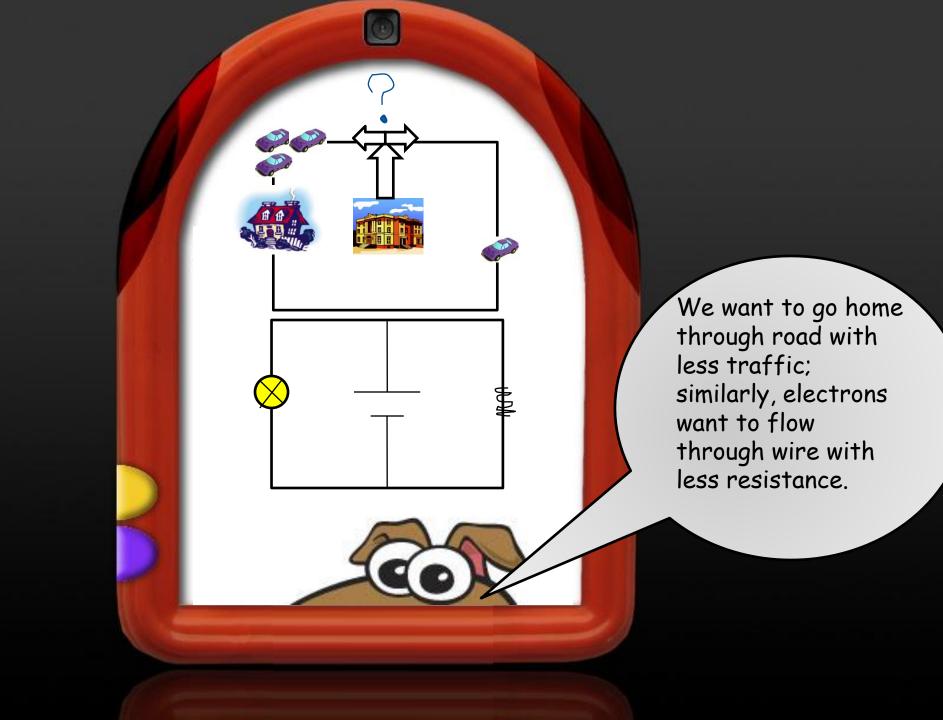








We do not like traffic jams; similarly, electrons do not like resistance.







And less electrons will flow through the light bulb, so that light becomes dimmer.



I see...Kiwi you are the best! This is for you.





# Why Kiwi?

Do we need a "living being" as an agent in imparting knowledge?

Why using a virtual pet that relies on the kid's feeding to engage in learning process?

What if Kiwi is a pure "learning" tool without a virtual pet?

Why using Common Sense database? ConceptNet?

Why should Kiwi have "rich Analogies" using AnalogySpace?

What is the limit of forming analogies? (1+1=2 vs. field theory)

What is the potential and limit of an education product like Kiwi?

What is the consumer group that Kiwi is targeting? (age, academic performance level, etc.)

Can we extend this group range by further empowering Kiwi?



#### **Vision** . Education Product

What makes a next generation Education Product successful?

→ Clever combination of

