

How important are:

- Effective remediation skills
- Teaching English Learners (ELL)
- Teaching students with special needs?

to the Foundational Level Mathematics (FLM)  
Credential

- How can we (CAMTE Members) be of help in focusing and streamlining teacher preparation requirements?

(+ is there a math teacher survival problem?)

**TPACK**

T=Technology

P= Pedagogy

ACK= Academic Area Content Knowledge

**For Remedial  
Learners**

**TPACK**

**PREVENTING AND REMEDIATING EARLY**

Pre-K  
to 3rd  
Grade



**Cheaper**

Upper  
Elementary  
to Middle



High School  
& Beyond



**MORE EXPENSIVE**

For Remedial Learners

CSET I, II

# INSURING SOLID BASIC, EXPLICIT, INTUITIVE FUNDAMENTALS

ACK

## OPTIONS FOR QUANTITATIVE REPRESENTATION AND RESOLUTION OF SITUATIONS

### LAYERS

III - Symbolic, sophisticated  
High School & beyond

### RANGE of DISTINCT BASIC CONCEPTS

**HUGE** "The inheritance of sense.."  
$$\frac{d^2\psi(x)}{dx^2} + \frac{2m}{\hbar^2}[E - V(x)]\psi(x) = 0$$

### INCIDENCE OF USE

Low specialized

II - Basic symbolic  
Elementary

**High** "I LOVE MY CAT"  
 $25.0 \div 2.0 = 12.5$

**High Humans only**

I - Realistic, instinctive  
Pre-K, Lower Elementary

**LOW?**

**HUGE** Widely used by all living creatures

BASIC, INTUITIVE CONTENT PREPARATION?

**Need a STRONG CONCRETE foundation**

How can we build a stronger **CONCRETE FOUNDATION** to support better symbolic learning?

**Strengthening the Realistic-Instinctive layer could offer HUGE, immediate practical implications, and better support for higher layers**

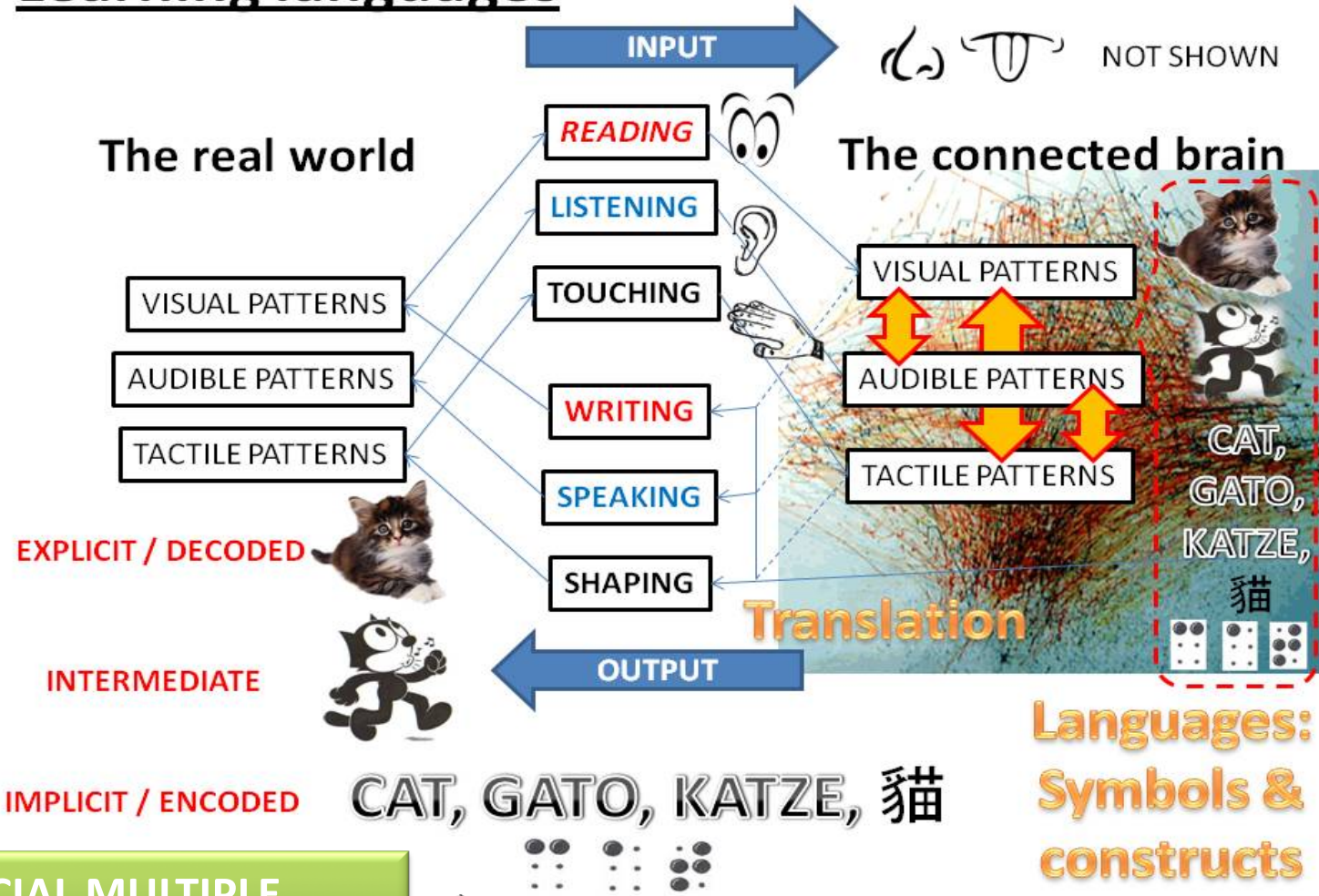
DO WE REALIZE THAT TODAY MORE THAN **99.9 %** OF ALL MATHEMATICAL REPRESENTATIONS AND OPERATIONS IN REAL LIFE ARE DONE ON **BINARY, BASE-2?**  
DO WE REALIZE THAT **THE NEW MATH CURRICULUM STANDARDS NOT EVEN MENTION BINARY, or BASE-2?**

For English Language (EL), Remedial and Special Needs Learners

# PROMOTING EFFECTIVE SYMBOL AND SENSORY REPLACEMENTS



## Learning languages



SPECIAL MULTIPLE REPRESENTATION CLASSES?

$$\frac{d^2\psi(x)}{dx^2} + \frac{2m}{\hbar^2}[E - V(x)]\psi(x) = 0$$



CALIFORNIA STATE  
UNIVERSITY  
E A S T B A Y

Want to improve your resume and be licensed  
to teach Middle School Math?

Join the Fall 2010 Cohort in the  
**Foundational-level Mathematics  
Added Authorization Program**

Description flyer  
for CSUEB  
Foundational Level  
Mathematics  
Credential  
Authorization  
Program

Content and Methods  
Courses & Topics

**Who?** This program is designed for students who would like to teach middle school math and who currently have or plan to obtain their Multiple Subjects teaching credential or a Single Subject teaching credential in a subject other than mathematics.

**What?** To add the California Commission on Teacher Credentialing (CTC) Foundational Math Authorization to a Multiple Subject or Single Subject Teaching Credential, you must:

- (a) Pass the Math CSET I and Math CSET II exams, and
- (b) Pass two Department of Teacher Education courses: TED 5390 and Ted 5391.

In our program, you will take the two TED courses and four or five MATH courses. The math courses will help you learn the mathematics you need to teach middle school mathematics and to pass the Math CSET I and Math CSET II exams in May 2011.

**When?** All courses will be offered in the evening and on a few Saturdays to accommodate students who work during the day. See the attached schedule.

**Why?** The Added Authorization in Foundational Mathematics "extends" your teaching credential to allow you to teach middle school mathematics classes, a **high demand** area for school district employers. Also, upon completion of the program you will be awarded a CSUEB Certificate in Foundational Math.

**How?** Complete the application form AND apply online as an Open University student, see

# Education Systems & Pressure Points

