

Success in Computing is RAPPID

Lisa C. Kaczmarczyk

INWIC

February 3, 2006

Comments from current women computing students

- “I was always the one with the crazy ideas”
- “I may have to get more degrees besides computing; otherwise I can’t work with...”
- “Do I HAVE to ...”

“No matter how much I do, I don’t feel successful enough”

When are you “successful”?

My definition of being successful in computing:

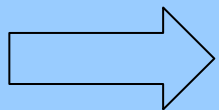
“You will be successful in computing when what you do is meaningful, and brings you happiness”

My experience about how to become successful:

“You become successful when you make successful decisions.”

How to make unsuccessful decisions

- Don't trust your instinct
- Second-guess yourself
- Follow convention without question



The results are dissatisfying

“Jelly Bean” Decisions

How to make successful decisions

- Chase your passions
- Trust your instincts
- Take ownership for your choices

 *The results are meaningful*

“Virgin Mary” Decisions

Successful decisions come from: RAPPID

R – Reasonable

A – Advance

P – Preparation

&

P – Personal

I – Instinct

D - Development



Talk outline

- Personal instinct development (PID)
- Reasonable advance preparation (RAP)
- Risk taking *is* about “risk”
- RAPPID recap

Personal instinct development

- Instinct is
 - The “crazy idea”
 - The little voice that gets squashed
- Crazy ideas in computing may be interdisciplinary ideas

Example: How I chose my dissertation topic

Dissertation born of a crazy idea

Initial Crazy Idea: “A backprop artificial neural network reminds me of behaviorist learning theory in humans....”

Crazy Idea Part 2: “maybe I can model behaviorist learning with a neural net...”

Crazy Idea Part 3: “what about immersion learning...and constructivist learning...”

Artificial Neural Network

Massively parallel

software system

Biologically inspired

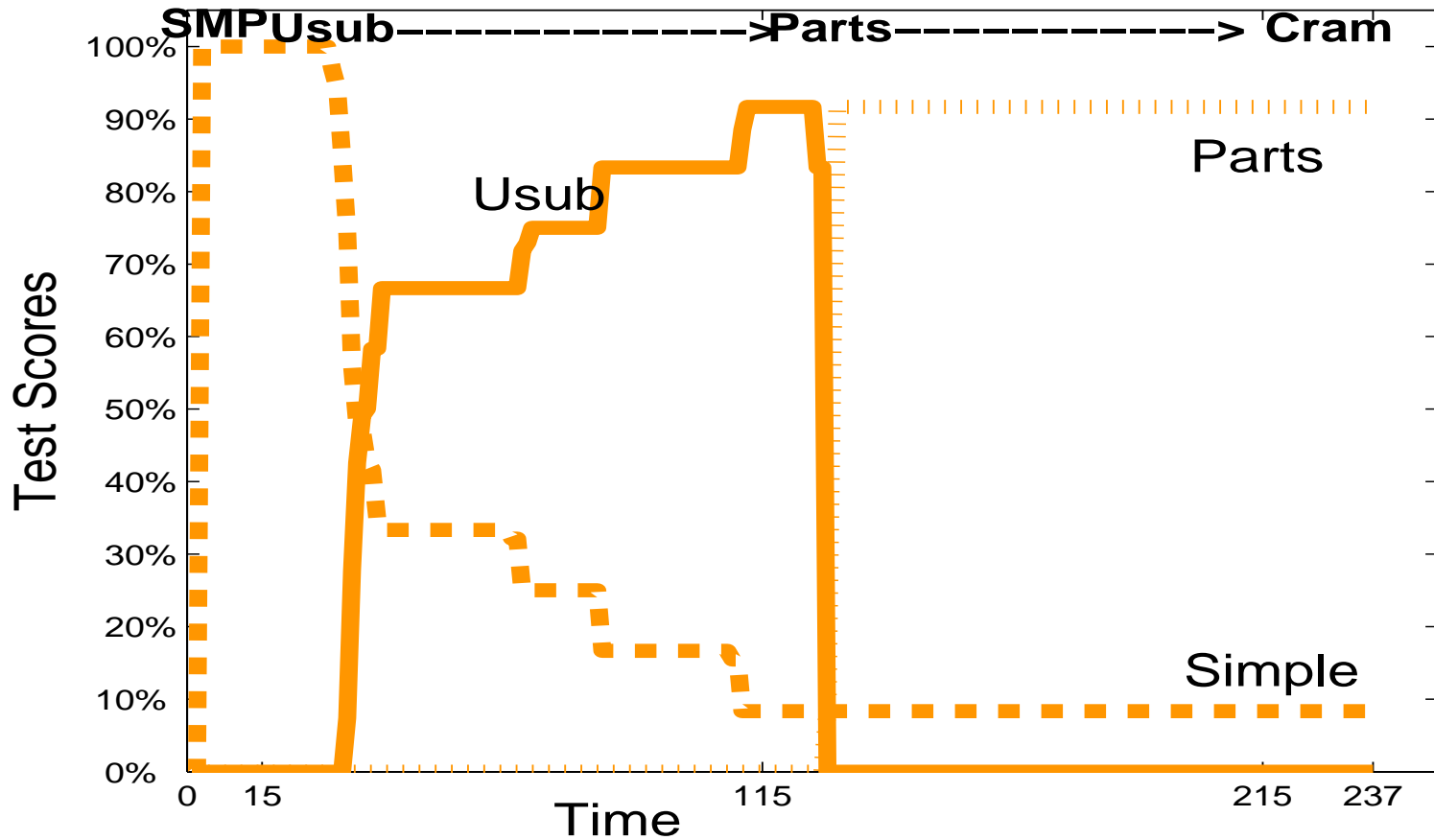
by the human brain

Some overly simplified terms

- Behaviorist learning (Drill & Test)
 - Practice practice, take a test, move on...
- Immersion learning
 - Give all problem types at the same time
- Constructivist (Incremental) learning
 - Build knowledge incrementally

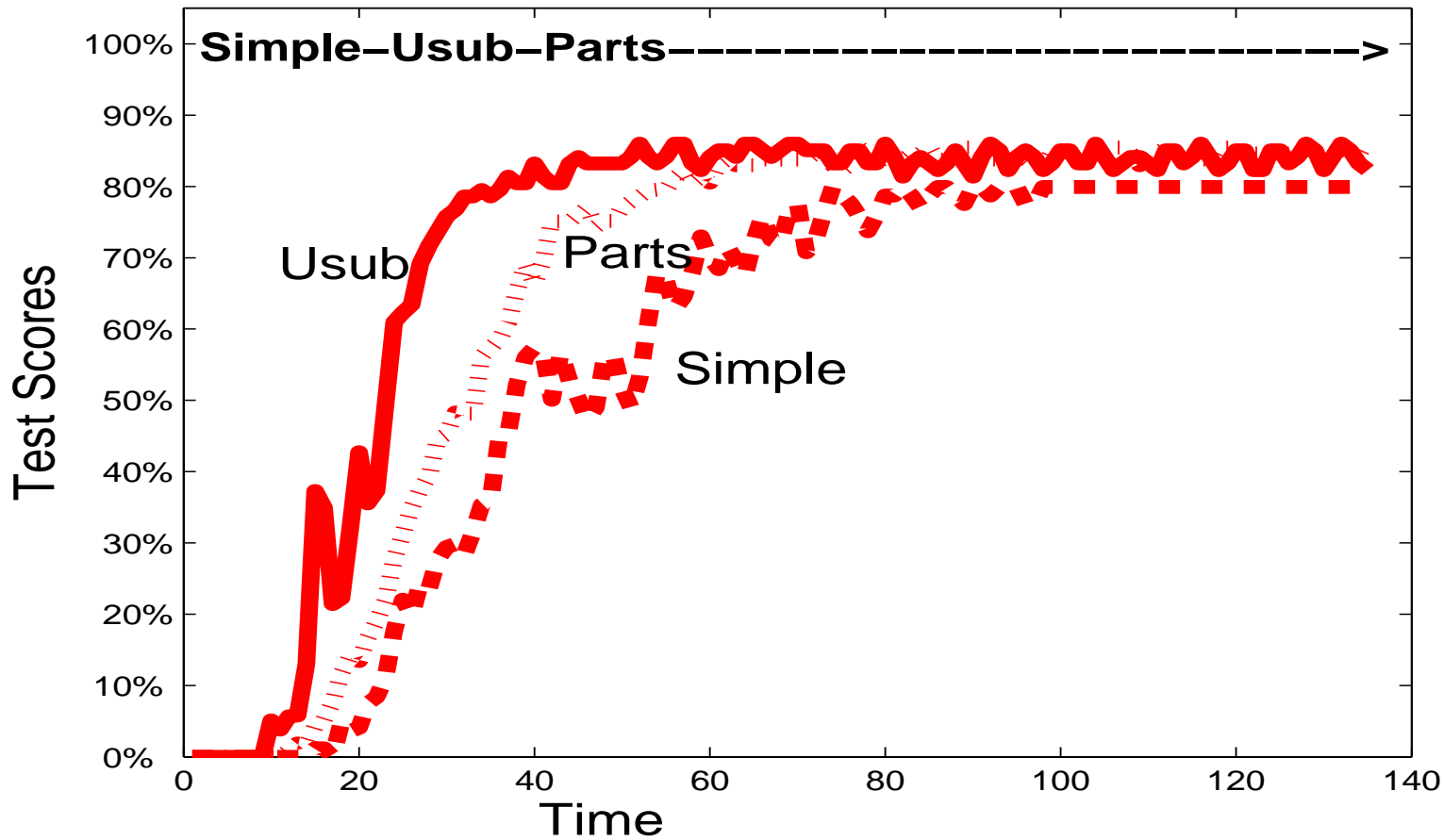
Simulation of Drill & Test learning

Average Concept Acquisition



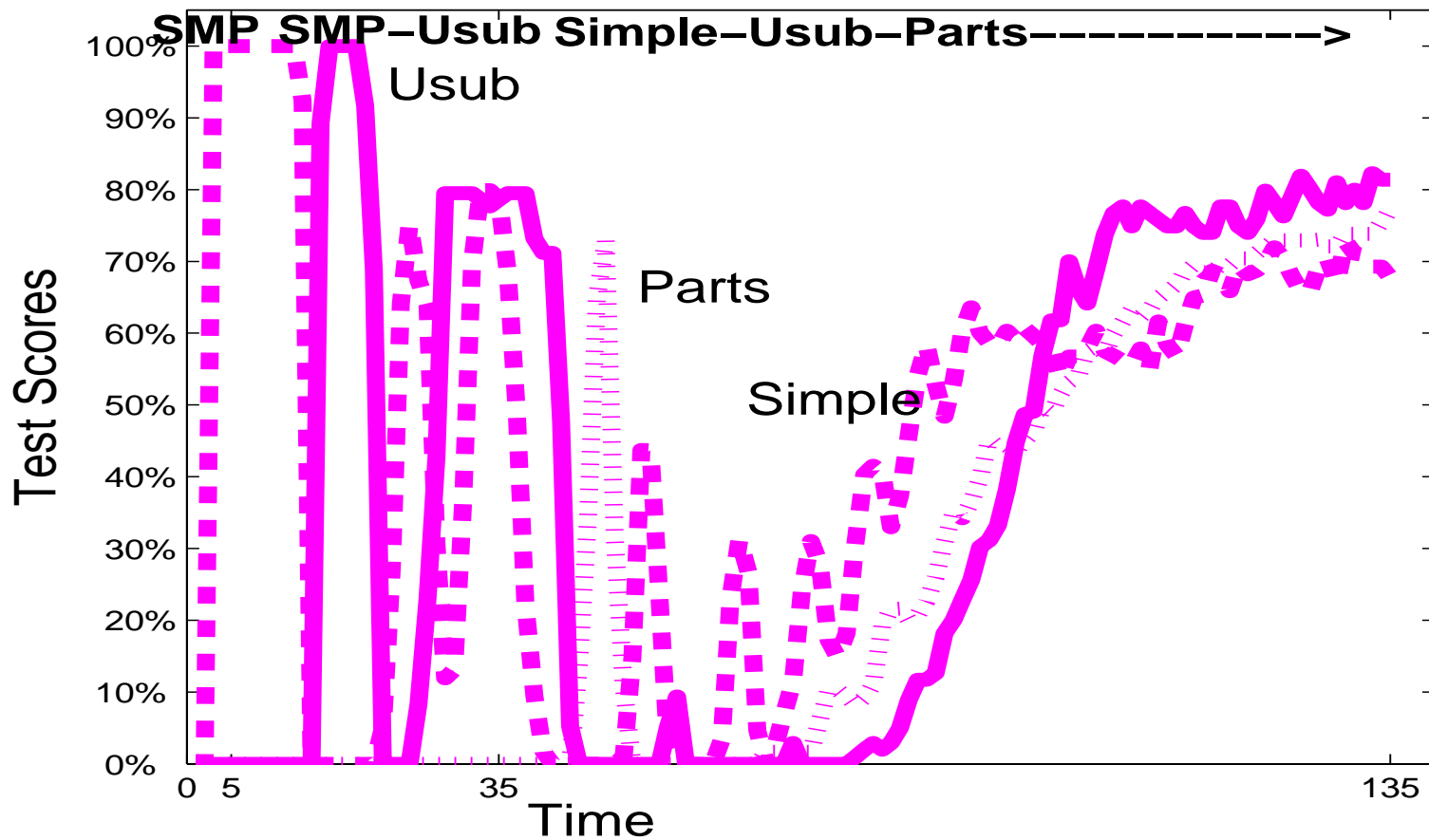
Simulation of Immersion learning

Average Concept Acquisition



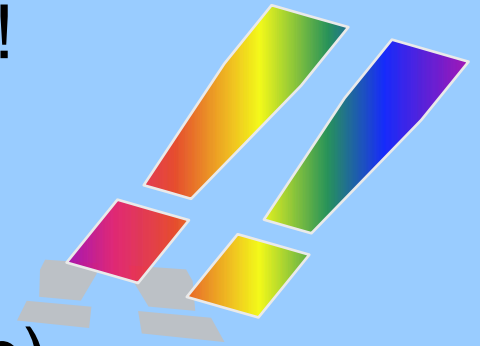
Simulation of Incremental learning

Average Concept Acquisition



One crazy idea leads to another... (but the idea isn't always yours)

- My dissertation committee was excited!
 - Run a human subject study now!
 - Test the network predictions!
 - “You can figure it out”
 - (No funding; no subjects; no help)
- There were costs
 - Almost two years
 - A LOT of unplanned work

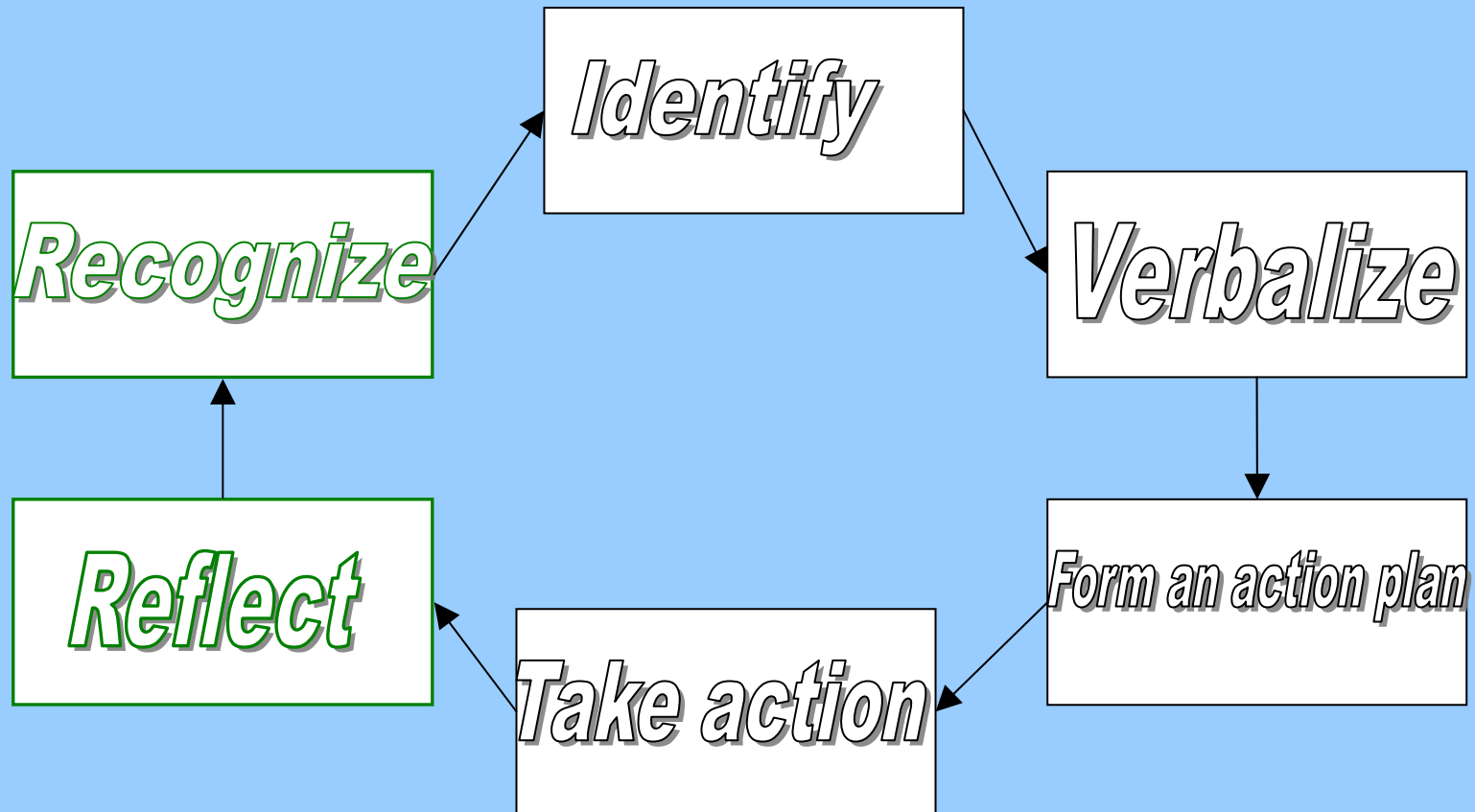


Cool things happened though

- The human subject study:
 - Compared the three types of learning
 - Validated network performance predictions
 - Found that Incremental learners develop
 - Better study and test taking strategies
 - More sophisticated conceptual understanding
- I learned something I was not looking for:
Successful instinctive decision-makers are the happiest learners



Develop instinctive ^videas



Make it personal: Question authority

- Someone “important” will always try to discourage your crazy ideas
- Thoughtfully evaluate their comments
- Take ownership of your decisions

Example: Sticking with my interdisciplinary PhD

Personal Instinct Development Recap

Personal: Take ownership of your ideas

Instinct: Recognize and trust the crazy idea

Development: It takes some work



What can you do to encourage your PID?

Reasonable Advance Preparation to-do list

- Act NOW
- Pursue topics that interest you
- Play up your personal strengths



Whether or not they seem relevant to
computing!

Following instinct != “winging it”

- Keep an “Idea Book”
- Schedule regular time alone
- Write your work hours on the calendar
- Percolate on your strengths & interests
 - Write them down
 - Post them where you can’t avoid them

The Payoff Is:
your instinct will percolate and



You have more control over decisions than you think

- In a *few* places you have no control over decisions
(e.g. Required courses in your curriculum)
- *Sometimes* you have limited control over decisions
(e.g. When shall I take the GRE?)
- Usually you can decide!

Example: I decided not to take the GRE CS subject test

Risk taking *is* about “risk”

- “Virgin Mary” decisions do not always go as planned
- But something good often comes of it

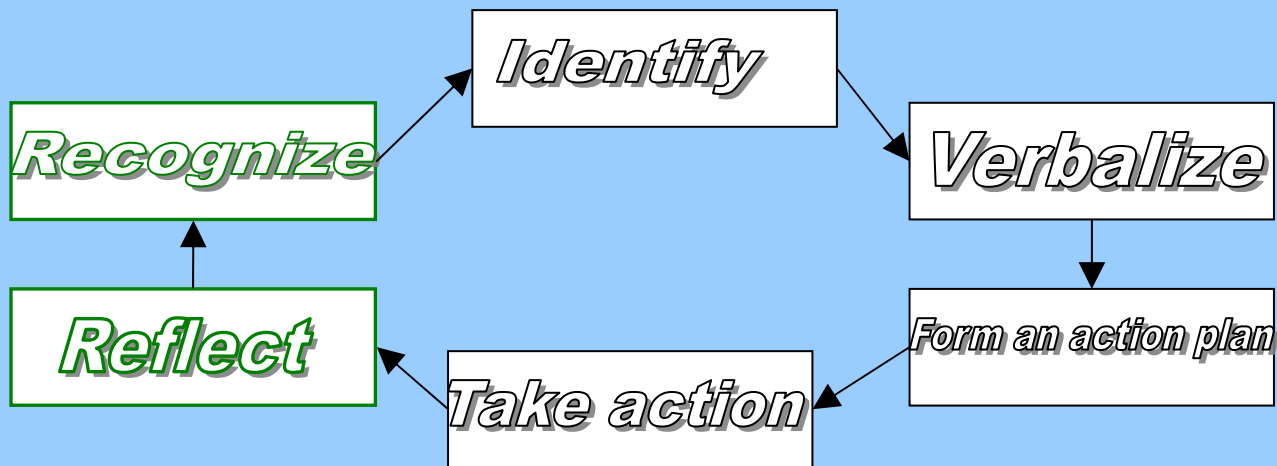
Example: The computerized GRE study

Example: Rollerblading in Helsinki

The Payoff Is:
knowledge, trust in yourself, and confidence

RAPPID recap

Personal Instinct Development:



Reasonable Advance Planning:

Act NOW!

The bottom line

Trusting your instincts to tell you what is interesting and important will result in more successful career decisions than if you follow someone else's priorities.

What is your instinct telling you right now?

How many jellybeans are there?

(Any Questions?)

