

# An Adaptive Learning Platform





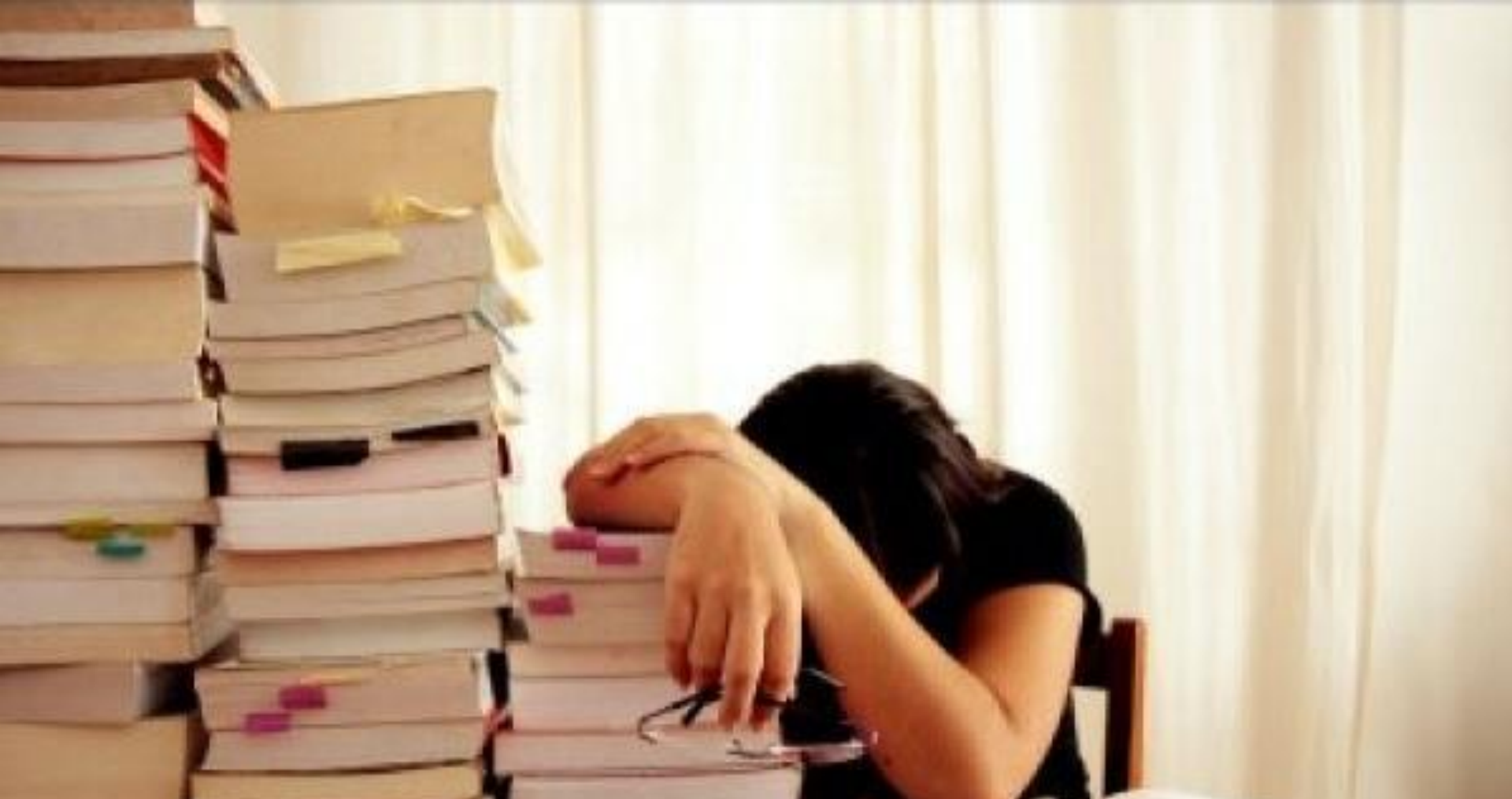
UNIVERSITÄT  
DES  
SAARLANDES

# Adaptive Support for Distributed Collaboration

Lisette Espín Noboa

[s9liespi@stud.uni-saarland.de](mailto:s9liespi@stud.uni-saarland.de)





**You**



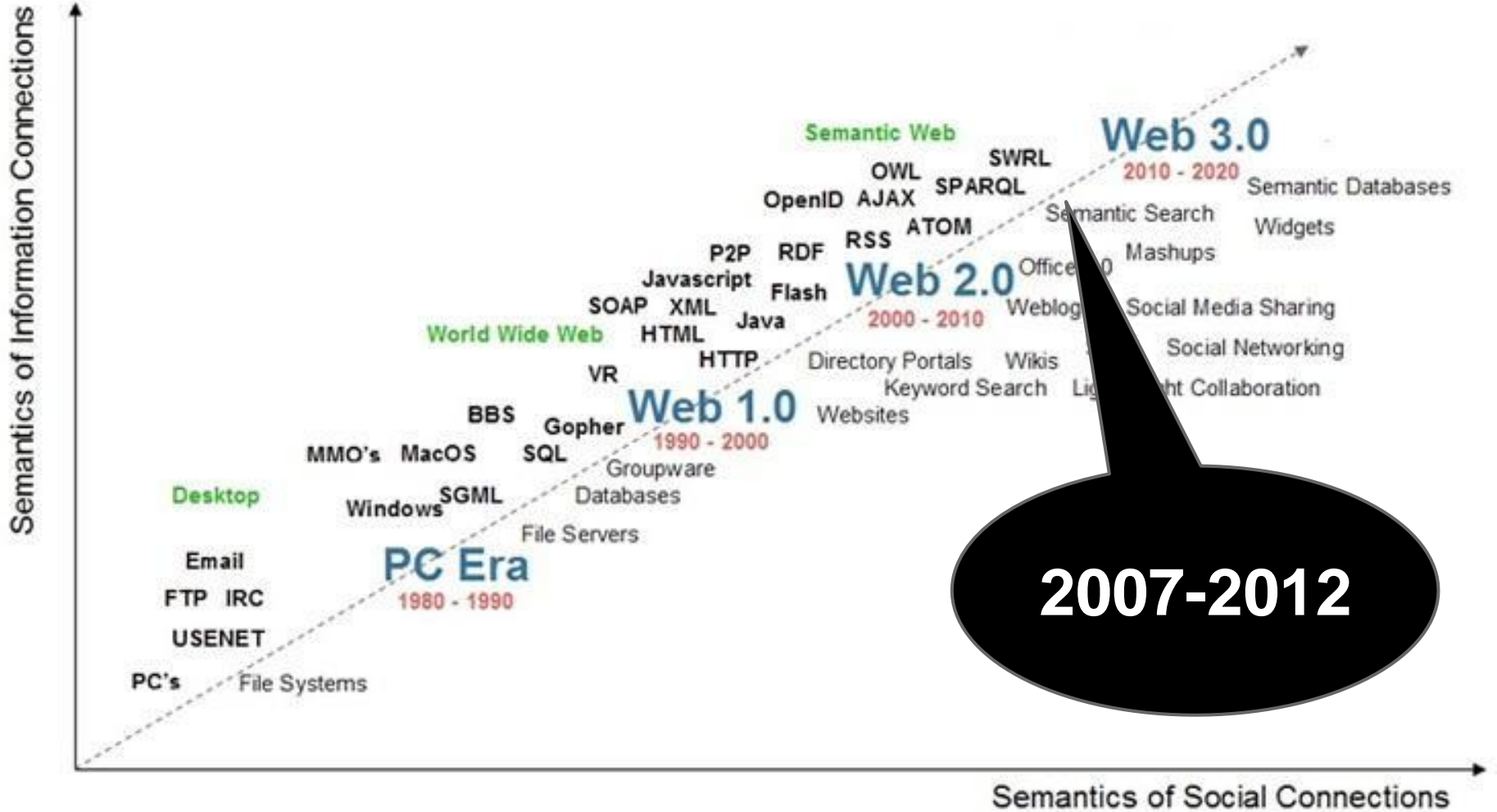
**You & classmates**

# What's the difference?



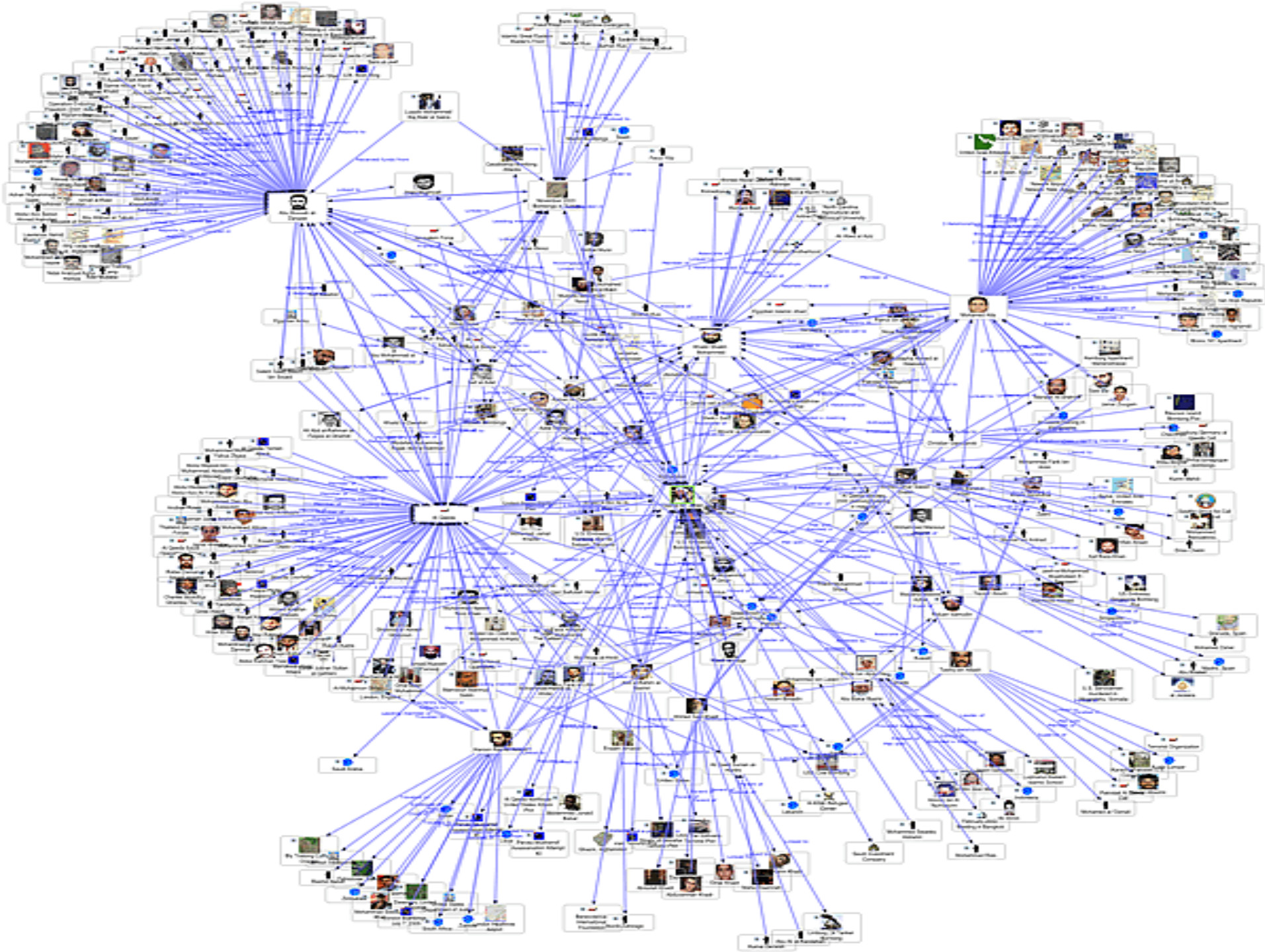






# The Web





# Collaboration-based knowledge construction



Individuals

Groups

Adaptive-Web

Collaboration

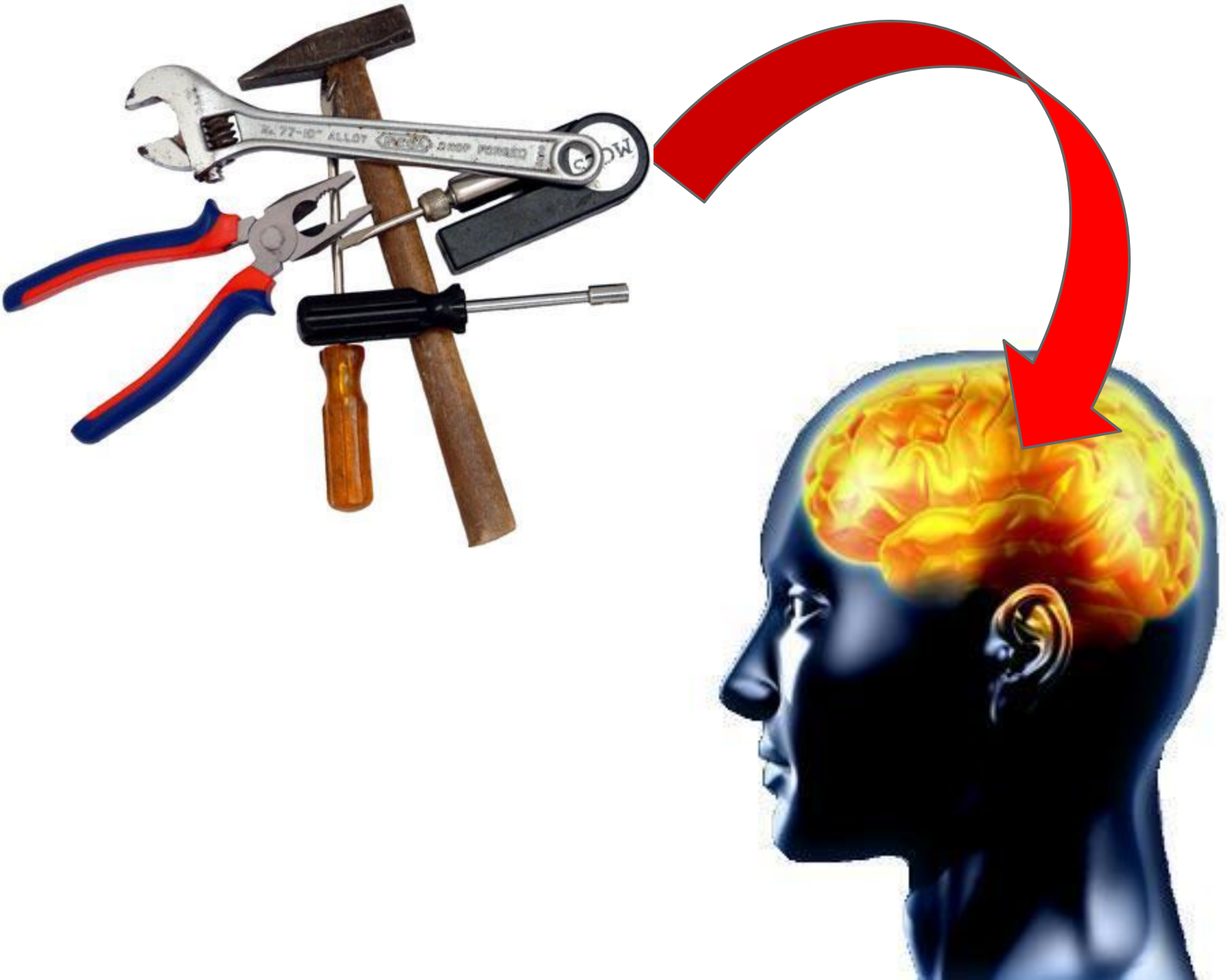
Adaptation

Knowledge construction

# Individual Adaptation



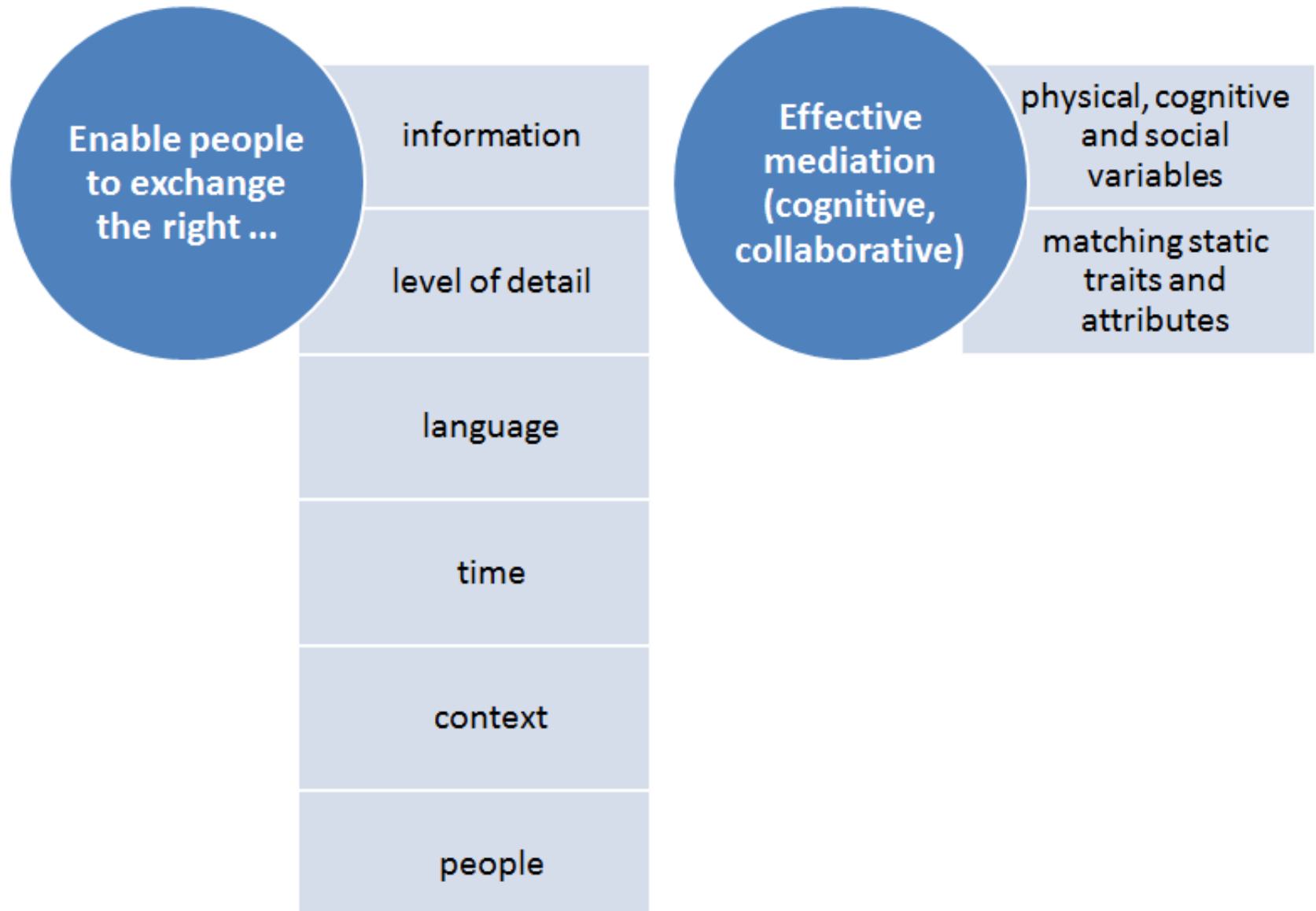




# The Adaptive Web



# Distributed Collaboration





Modeling

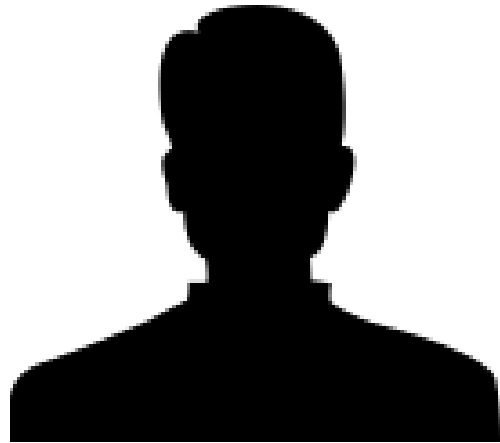
Group Productivity?

Social matching

Collaborative Filtering

Adaptive Collaboration Support

user@example.com



## CLICKSTREAM

/login

/dashboard

/projects/new

## ATTRIBUTES

**Sign up date:**  
April 2nd 2012

**First\_name:**  
Joe

**Plan**  
Free-Trial

**Trial Ends**  
May 2nd 2012

## CUSTOM EVENTS

connected-to-facebook

upgraded

invited-friend

# User Model



Lisette Elizabeth Me gusta



Nestea Ecuador

Comida/Bebidas  
29 de mayo de 2012 1:04  
A 219.998 personas les gusta esto

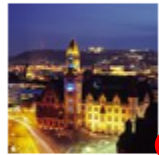


Saarbrücken

Ciudad

16 de mayo de 2012 1:04

A 15.523 personas les gusta esto



Saarbrücken

Ciudad  
16 de mayo de 2012 1:04



Amazon.de

Mercancías de consumo básico y ventas al por menor  
15 de mayo de 2012 22:56  
A 539.382 personas les gusta esto



A Jetir Duraj y 4 amigos más les gusta esto



Universidad del Sarre

University  
13 de marzo de 2012 18:05  
A 1.331 personas les gusta esto



A Mehdi Hosseini y 5 amigos más les gusta esto

U

# Recommender Systems

Collaborative  
Filtering

- Similarities (user-items)

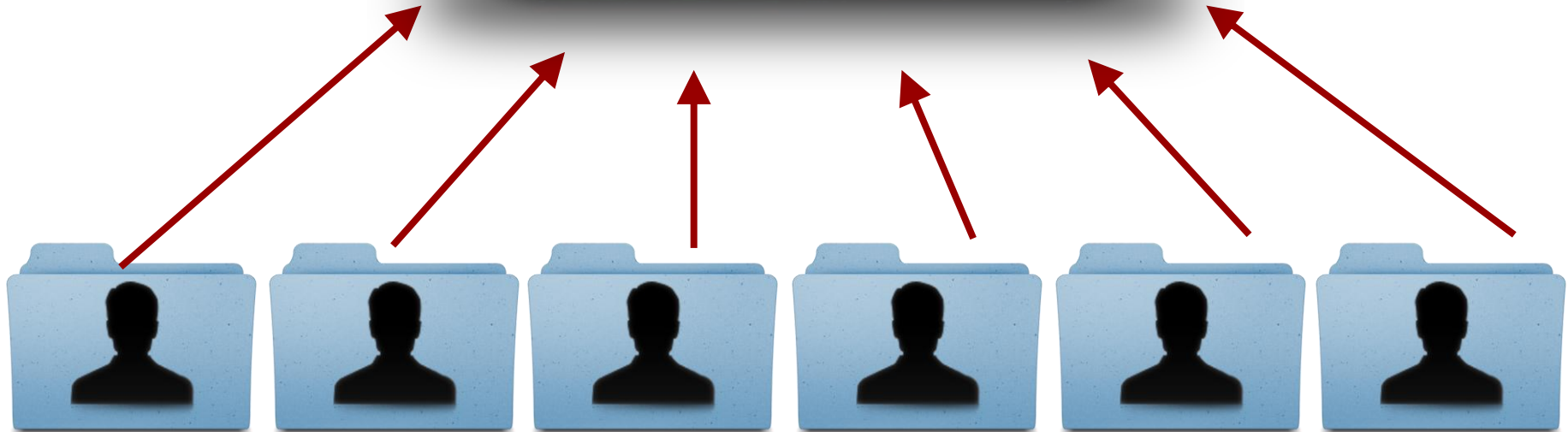
Social  
Matching

- Similarities (social content for connecting people)

**What about group  
models?**



- Management of competition and conflict
- Ability of use different viewpoints
- Mutual Support
- Ability to produce detailed/elaborated explanations





**What about  
Online  
Communities?**

# Online communities



Communities of practice

Communities of interest

Knowledge Sharing



Community Development



# Awareness

incorrect interpretation

86%



“Dead End”  
Australia, Canada

78%



“No Explosives”  
Poland



moderator





peer review



# What we've seen so far...

- Group construction
- Online collaboration
- Behavioral effects
  - User's knowledge
  - Motivation, roles, language, group dynamics
- Dynamic mediation and facilitation
  - Awareness
  - Knowledge discovery
  - Community maintenance

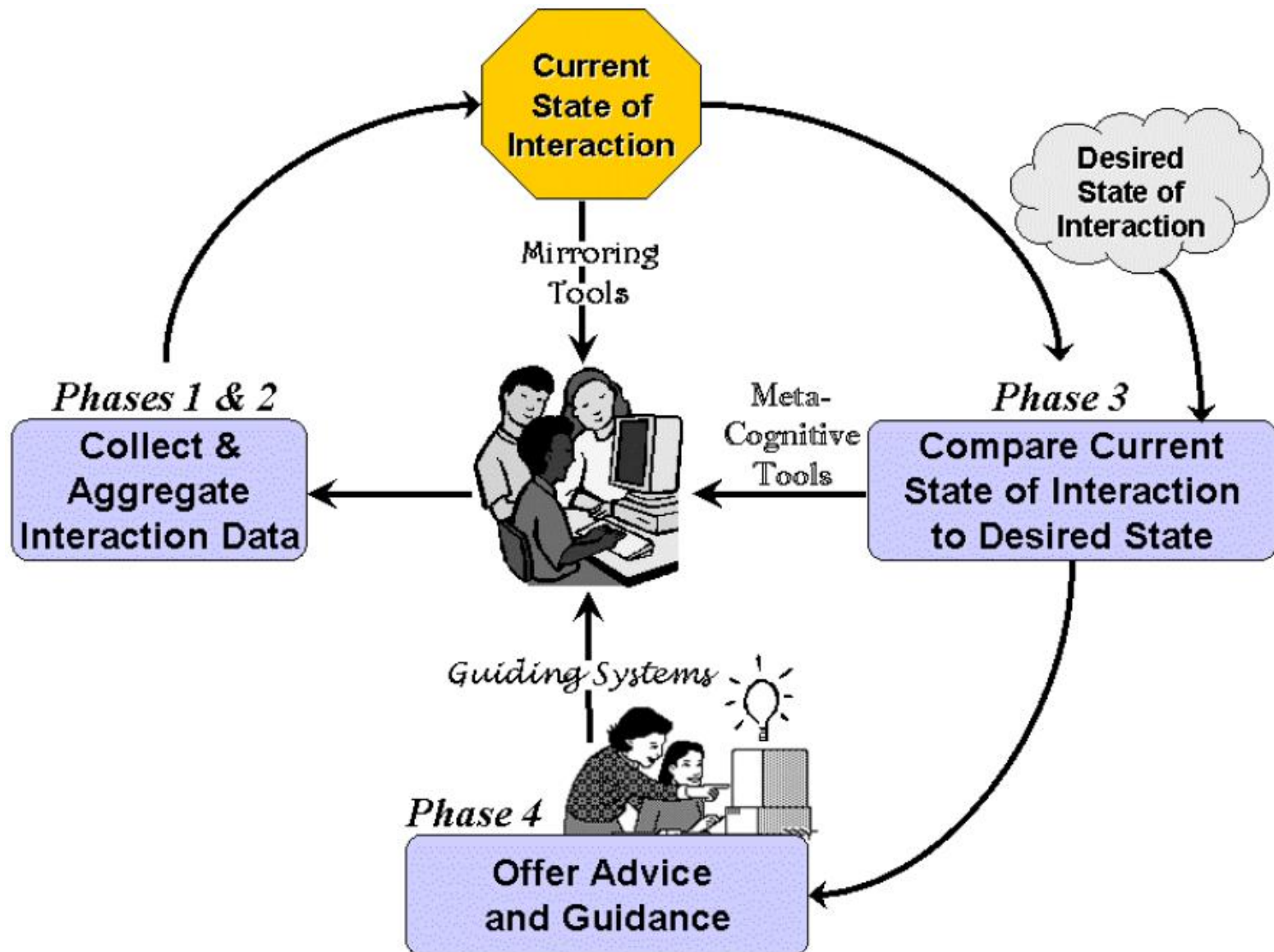


**What/When/How**

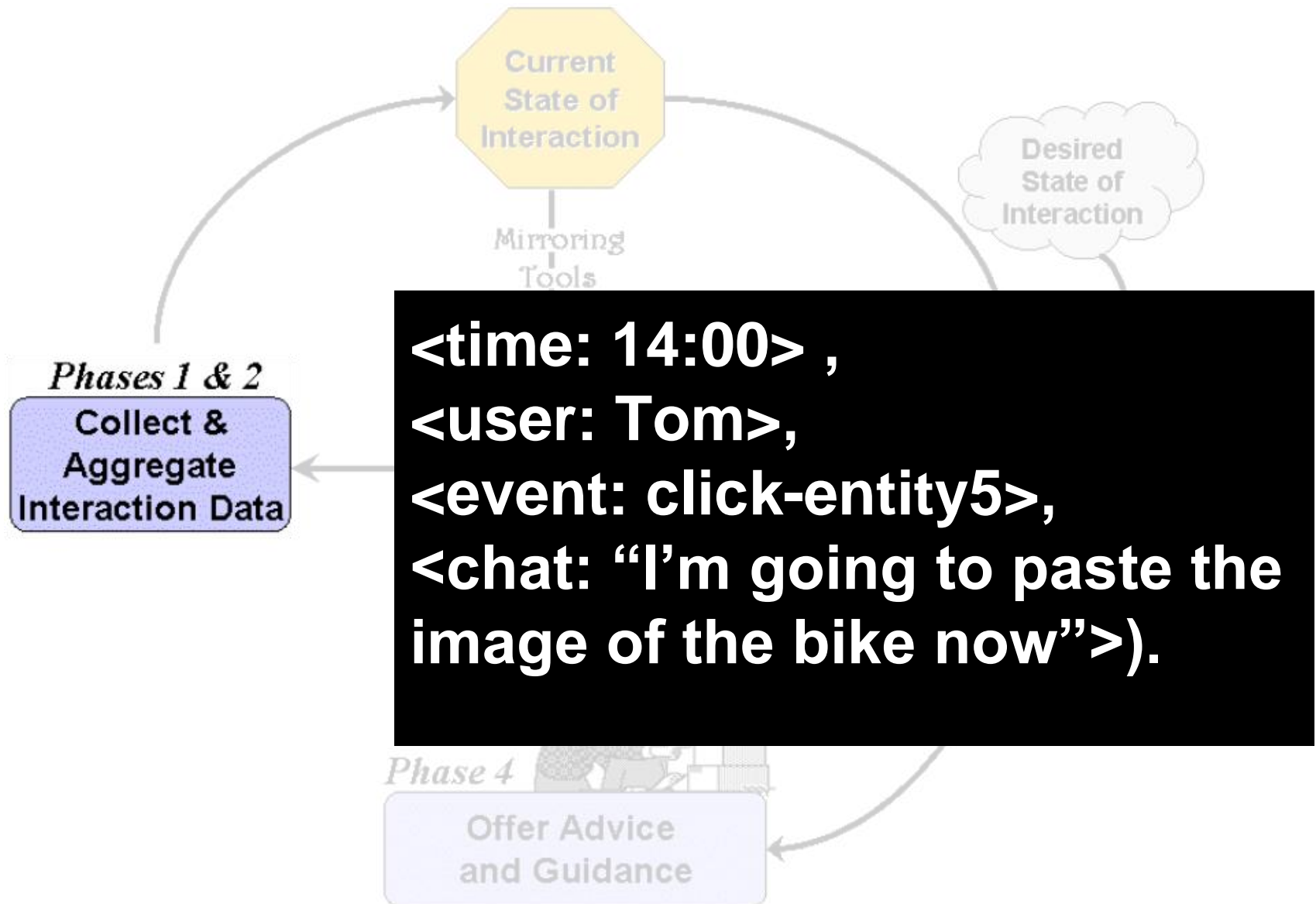
**Online**

**Collaboration**

# The Collaboration Management Cycle

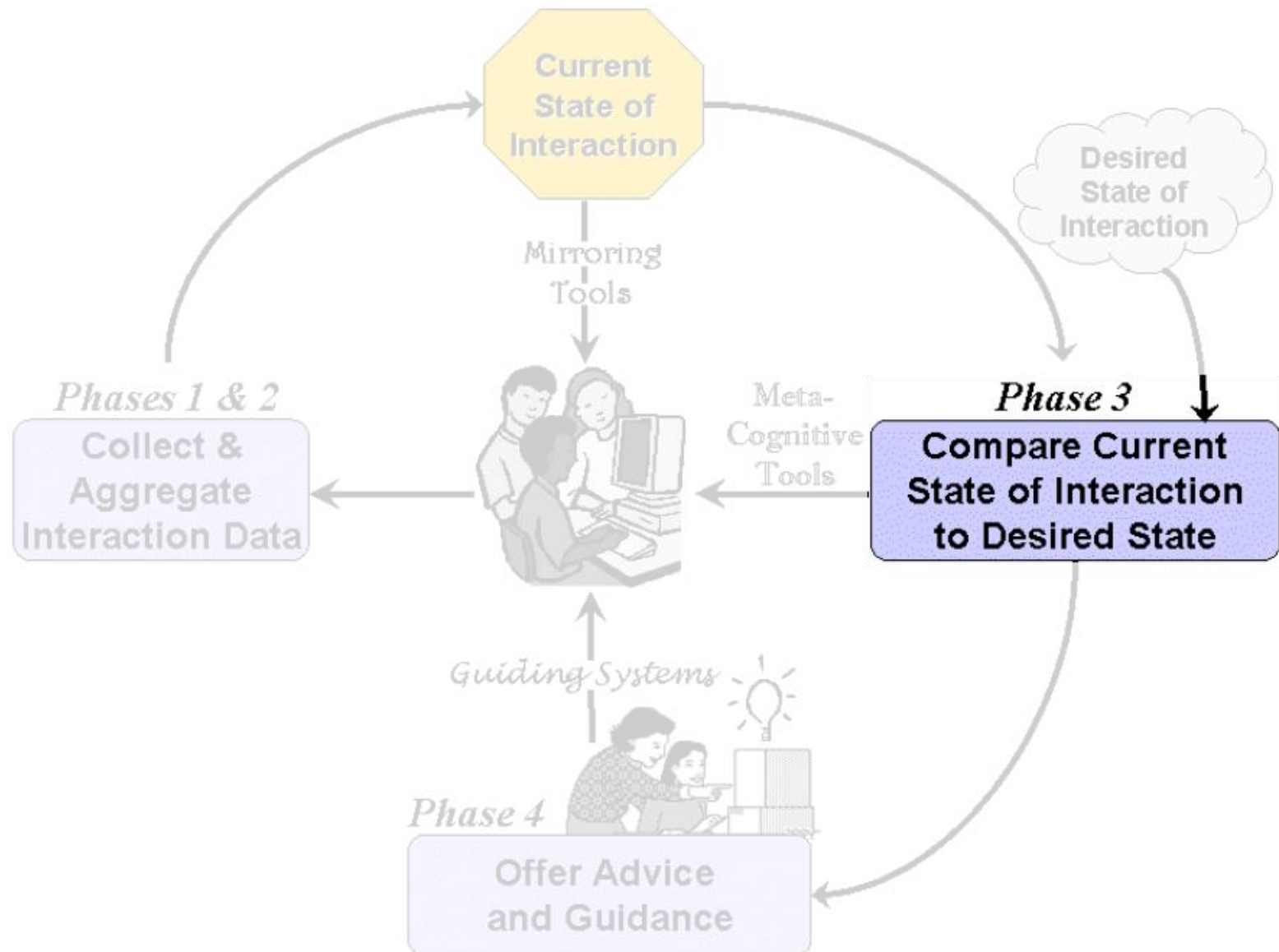


# The Collaboration Management Cycle

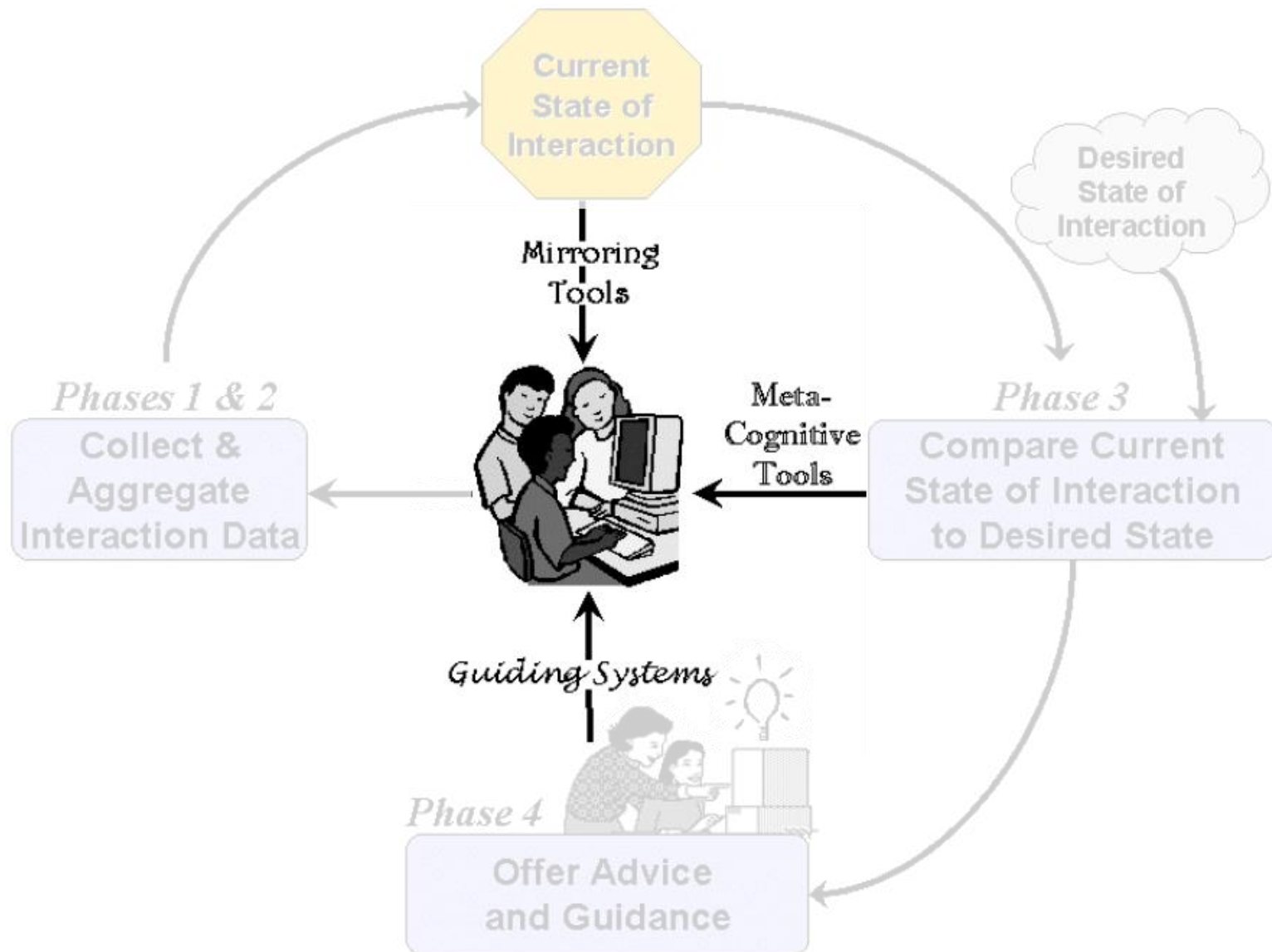


**<time: 14:00> ,  
<user: Tom> ,  
<event: click-entity5> ,  
<chat: “I’m going to paste the  
image of the bike now”>).**

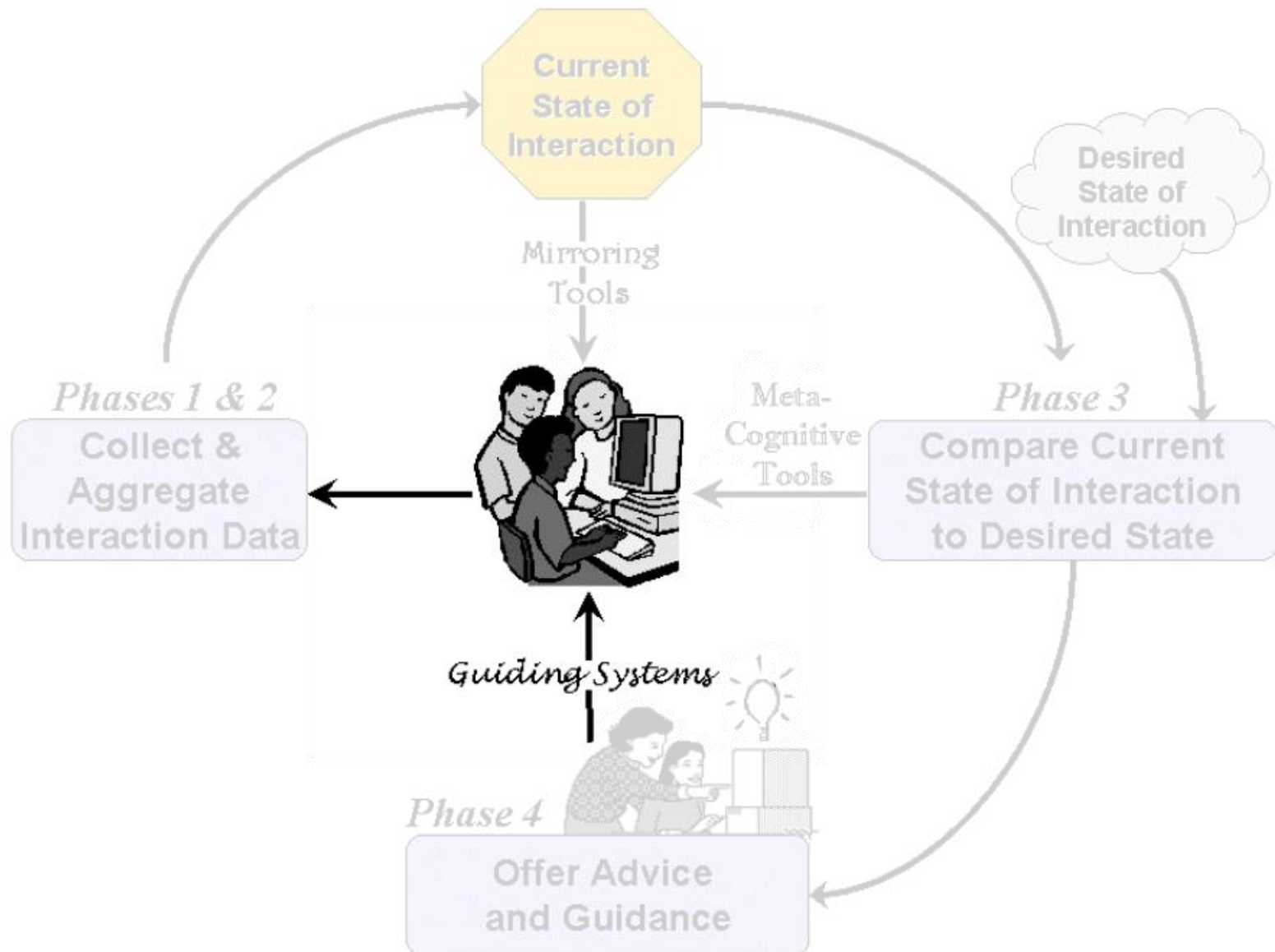
# The Collaboration Management Cycle



# The Collaboration Management Cycle



# The Collaboration Management Cycle





# IMMEX

IMMEX Collaborative - Microsoft Internet Explorer

### Chat

- Introduction
- Flame Test
- Flame Key
- Reaction With Silver Nitrate

Let's try either a pH est or silver nitrate test to identify the pH or whether we have chloride

I think we should do the silver nitrate test

OK

Terry has the mouse

Terry ran the test

The test showed a white precipitate so was that a positive test for chloride

What does that mean?

It means that we formed AgCl because of the formation of the white precipitate. Silver chloride is insoluble

OK YES NO

Propose Discuss Review

So far we know

We can eliminate

If

Then

Do you know

Free text review

So the result is NaCl?

### LIBRARY

- glossary
- chemical properties
- solubility rules
- solubility table
- flame key
- litmus key
- conductivity key
- periodic table

### STOCKROOM INVENTORY

view inventory

### PHYSICAL TESTS


- flame test
- conductivity
- solubility

### CHEMICAL TESTS

- red litmus
- blue litmus

### REACTION WITH

- hydrochloric acid
- sodium hydroxide
- silver nitrate
- sodium sulfate
- potassium iodide
- barium nitrate




replay

a white precipitate formed

## HAZMAT

HOME · LOGIN · LOGOUT · ENROLLED CLASSES · PROBLEM SETS · PROLOG · SCORE · SOLVE

IMMEX COLLABORATIVE



Terry

Charlie

Charlie: You have the control of the mouse. Use it or give it to Terry

Terry

Give

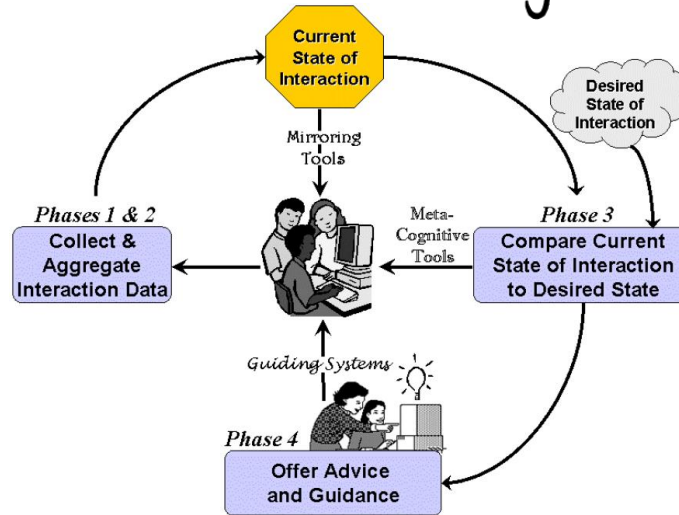
# Individual Adaptation



# Developing knowledge



## The Collaboration Management Cycle



# Community Development Knowledge Sharing



# The Adaptive Web

# Conclusion

- The adaptive-web is challenged to provide a personalized knowledge interface that carries new perspectives to diverse communities.
- Correctness of User and Group modeling, in group construction
- Communication
  - voice, text, appearance, behavior, and action
  - Combination of them (context, timeframe)
- Learning Processes

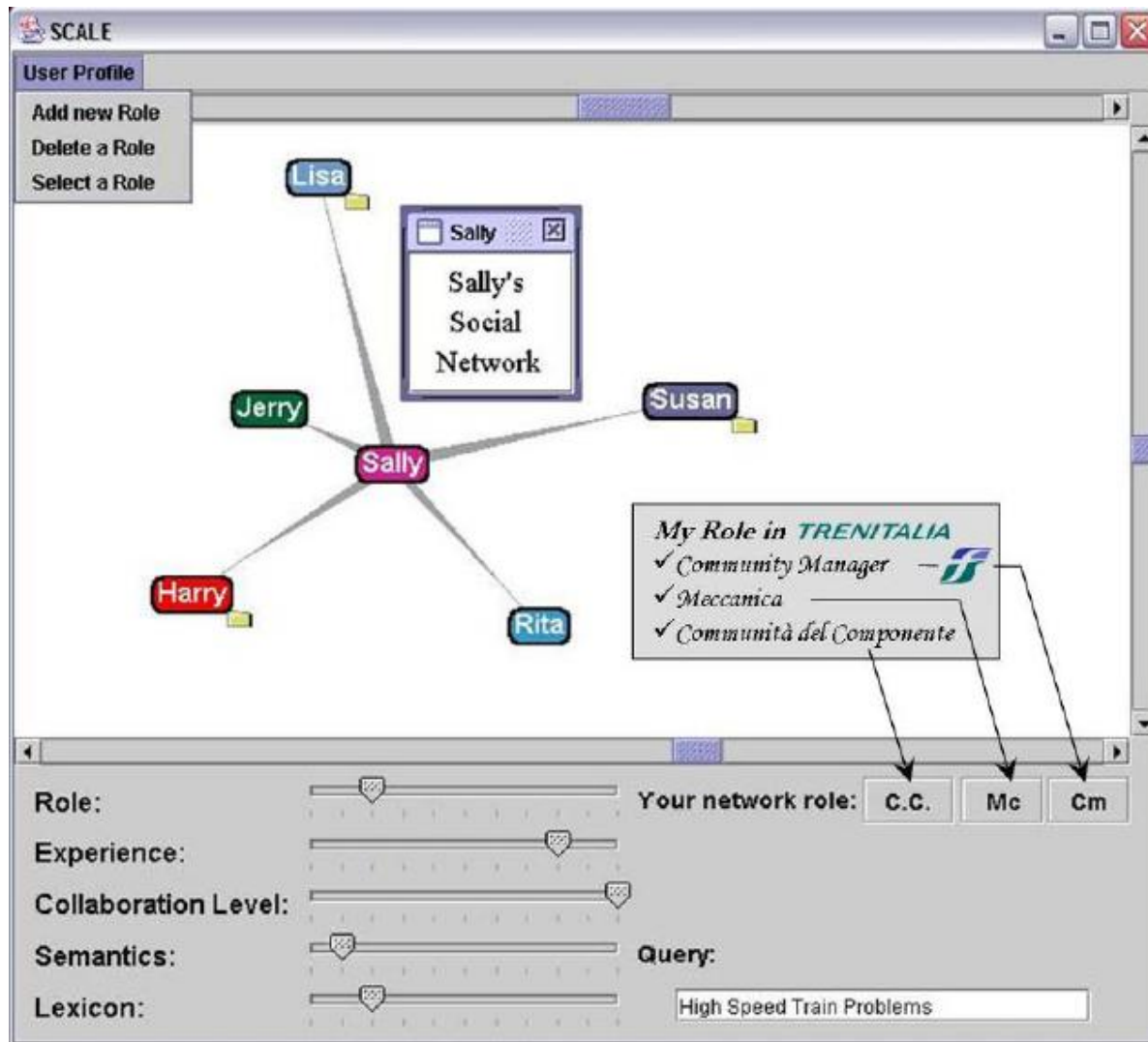
Thank you!

# Backup Slides

- Applications (use cases)
- Contingence over less-structured environments
- Collaborative Filtering
- Social Matching



# iVISTO (Interactive Visualization Tool)



# LiveJournal

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True Community



Content You Care About



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**which is worst**

Vote in polls to determine which is worse

Something missing??

# Contingence over less-structured environments

- users: more control over the way that their interaction is mediated
- Adaptive Web:
  - might be: an interactive, personalized social network visualization
  - goal: to discover knowledgeable peers, online communities, and other resources in crosscutting research areas

# REFERENCES

- Adaptive Support for Distributed Collaboration  
<http://www.springerlink.com/content/337hv4252r515022/>
- Other Personalized Systems  
[https://docs.google.com/document/pub?id=1IVeb-Y8vO0TDRWVe4irKtkUqyYL\\_FJD79BrWnIYwQfY](https://docs.google.com/document/pub?id=1IVeb-Y8vO0TDRWVe4irKtkUqyYL_FJD79BrWnIYwQfY)