User Assistance and Cognitive Science: Practical Applications

Workshop
Ray Gallon

Interaction I

How many living beings in this video?

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ALL REALITY IS PERCEPTION

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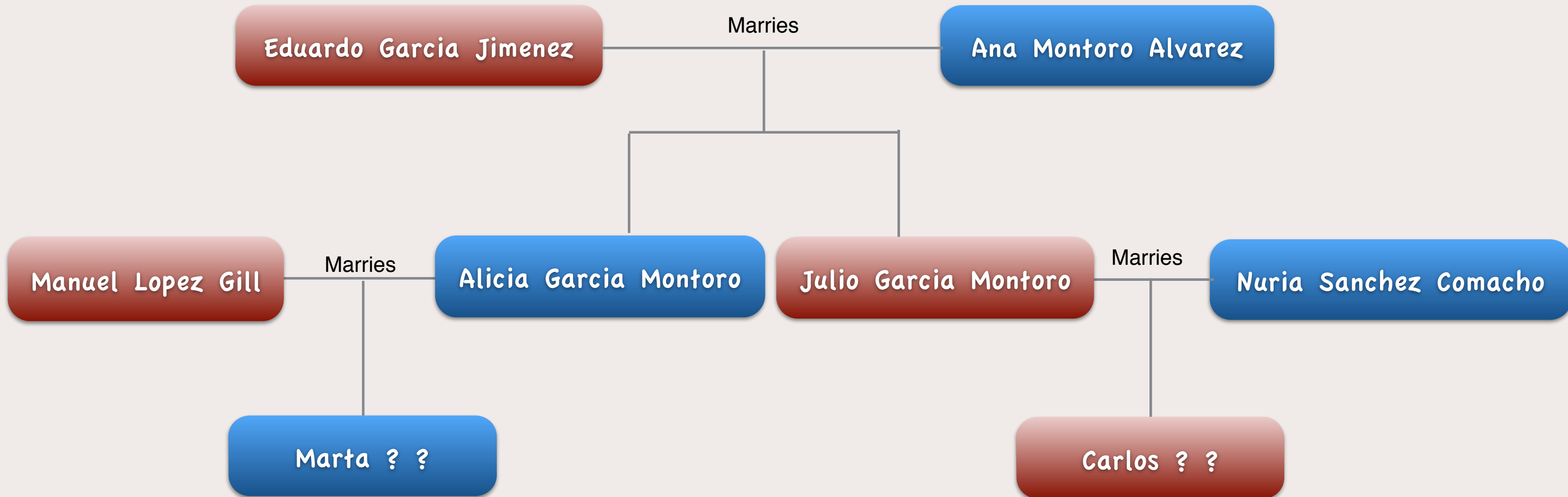The Transformation Society

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Some of What We'll Touch On

- Deductive Reasoning - you can figure it out yourself!

- Filling in the gaps

- Constructivism: where do users find meaning in UA?

- Action-Learning and Cognitive Demand

- What's Competency got to do with connections?

- Finding help and making it count through Connectivism

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Interaction 2: Spanish Family Names

Eduardo Garcia Jimenez —— Marries —— Ana Montoro Alvarez

Manuel Lopez Gill —— Marries —— Alicia Garcia Montoro | Julio Garcia Montoro —— Marries —— Nuria Sanchez Comacho

Marta ? ?

Carlos ? ?

Deductive Reasoning

Gestalt Psychology

- Tries to understand how we acquire and maintain stable percepts in a noisy world.

- The brain is holistic, parallel, and analog, with self-organizing tendencies.

- The human eye sees objects in their entirety before perceiving their individual parts

- The whole is "other" than the sum of its parts.

Source: http://en.wikipedia.org/wiki/Gestalt_psychology

Gestalt Psychology

- REIFICATION:

  - A triangle will be perceived in picture A, although no triangle has actually been drawn.

  - In pictures B and D the eye will recognize disparate shapes as "belonging" to a single shape.

  - In C a complete three-dimensional shape is seen, where in actuality no such thing is drawn.
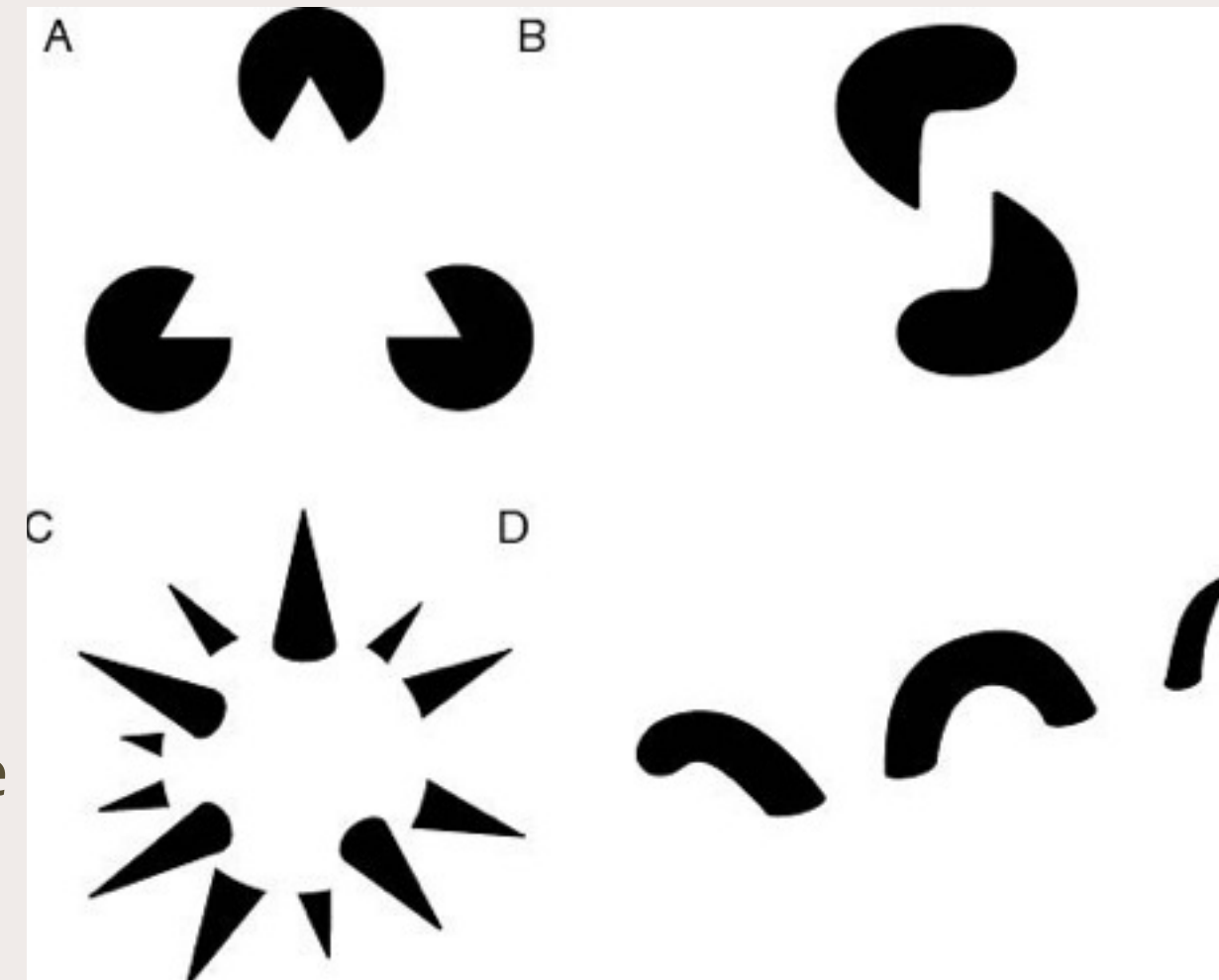
In other words, we fill in the blank spaces to complete them.

John Carroll favours this kind of *inferential learning* in minimalism.

It can be difficult to give up the images we've integrated into our perceptive schemas

Interaction 3: Reification

Excerpts from a web site:

Why become a Green Top FOUNDING OWNER now?

Because we need our Founding Owners BEFORE we can move ahead to secure a site for our store and work on getting it open. Thanks to our Seed Starters…

…but we can't move ahead without commitment from our owners.

As a Founding Owner, not only do you share the vision . . .

…Even without an actual store where you can shop (yet!), you are willing to make a tangible investment…

Read Our Blogs!

- Field Trip: Willy Street Co-op
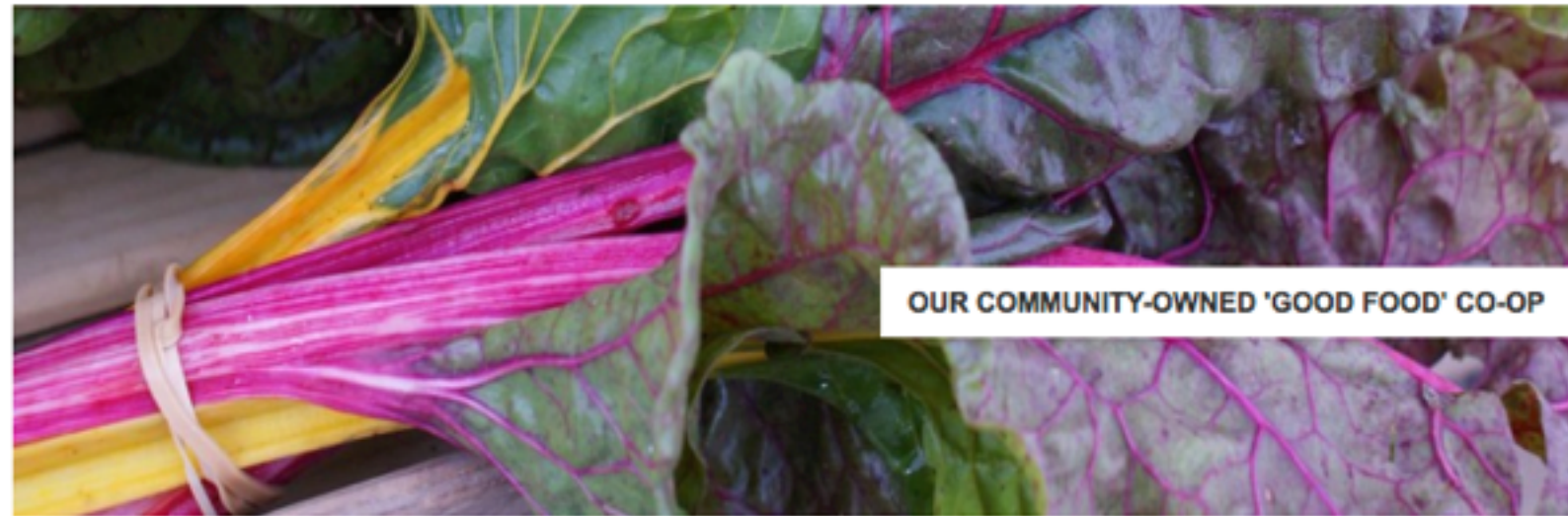- Want to Eat Like a Pilgrim? (Eat Local!)
- Summer Owner Drive Kick-Off

…**When we issue Green Top ownership cards, we will include a special note on our Founding Owners' cards, as recognition of your important role in Green Top's development.**

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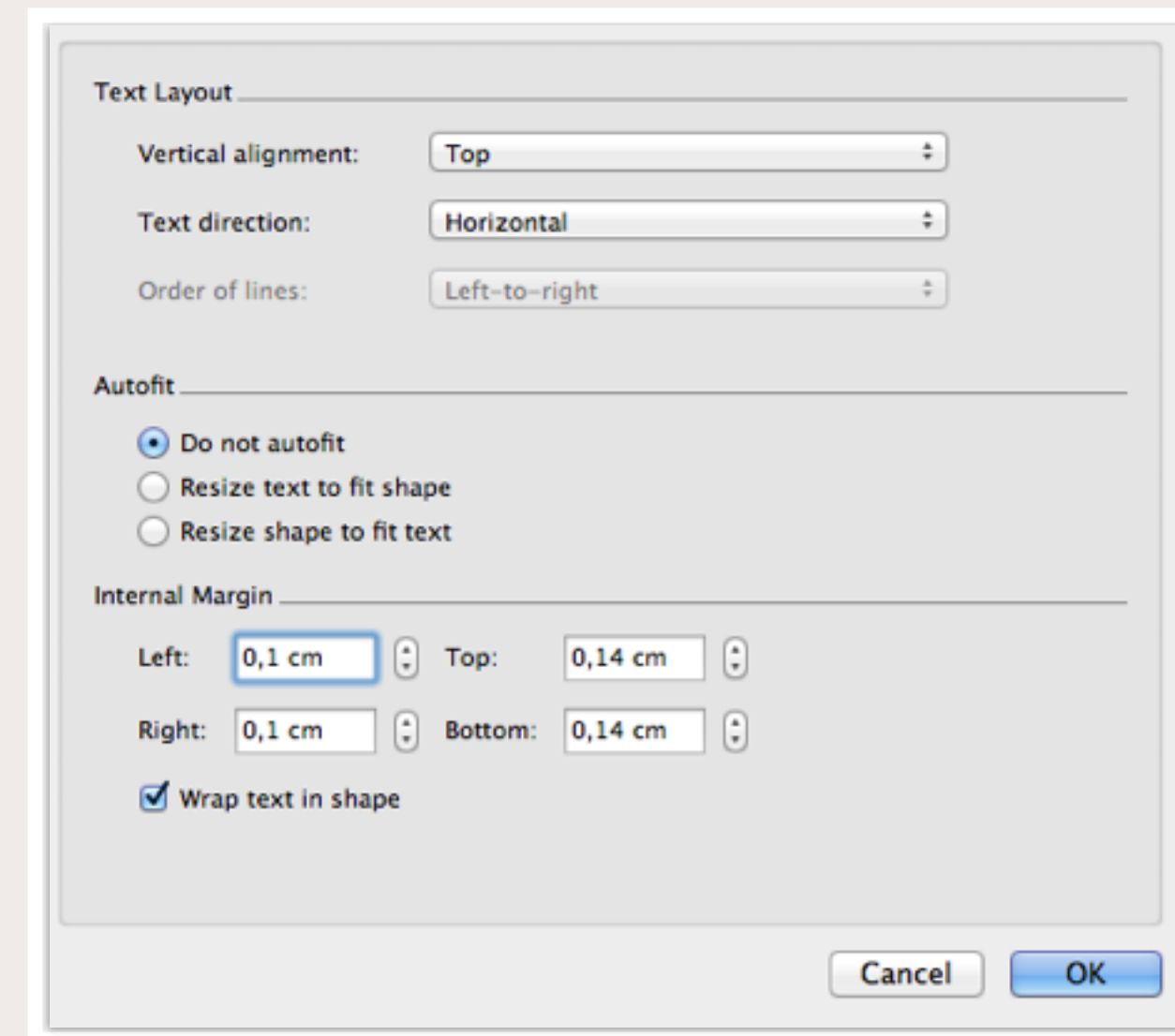
The Green Top Home Page

Gestalt Grouping Principles are Used in User Interface Design

- *Proximity:* objects that are close to each form a group.

- *Similarity:* similar elements are perceptually grouped together.

- See also, James J. Gibson's idea of *affordance.*

Constructivism

- Learner experiences an environment first-hand, gets trust-worthy knowledge.

  Always true with UA?

- Self-directed learners must act on the environment to acquire and test new knowledge.

- Instructors are facilitators, not teachers.

  The UA is the facilitator

- The learning context is central to the learning itself

  The product

- Learning is an active, social process.

- Learners should collaborate to arrive at shared understanding.

  How can we organize this?

Source: http://en.wikipedia.org/wiki/Constructivism_(learning_theory)

http://s3.apkhub.com/cb641de15fe611dfaa93009b2f3ef30f.jpg

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Experience is More Important than Taxonomy

- In traditional "static" documentation, the product gives *meaning* to the docs.

  - Users' experience with the product takes them from the abstract realm of reading *about* the product...

Experience is More Important than Taxonomy

- In traditional "static" documentation, the product gives *meaning* to the docs.

  - Users' experience with the product takes them from the abstract realm of reading *about* the product…

  - to the *reality* of performance.

- The real meaning, then, is embedded in the realm of action!

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Interaction 4

- You need two sheets of paper

- Follow instructions

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People Learn Best by Doing

- People learn about product use by doing something and making connections in the process.

- BUT: is memorizing a procedure by rote necessary for competency?

- How do I even know if I need to do this?

Decision Support

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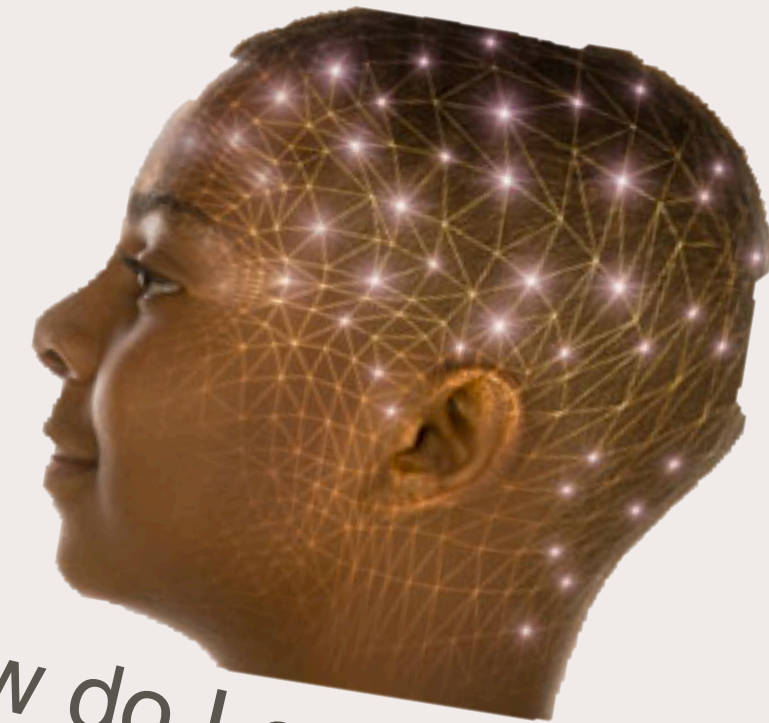
Does Your Content Strategy Include Your Product?

Seen this before?

Is it helpful?

Helping users get out of trouble is one of the most important things you can do, and one of the cardinal principles of minimalism

What impression does a user get of your company when s/he sees this on the screen?

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Interaction 5: Experience

- In pairs, tell each other about a difficulty using a technological product, and the emotions that that generated.

- Make a list of those emotions

- We now have a list of emotions that users might feel in front of your product. What can you design into your product to prevent those from happening, or to assuage them if they do occur?

Double Embeddedness

Embed **procedural** UA directly into the **Interface**

Embed **simple** concepts directly into the **UA**

Cognitive Science (and John Carroll) backs this up

Active Learning: Learning by Doing

Roger C. Schank's Schema - We remember independent, self-contained scripts, or Memory Organization Packets (MOP's)
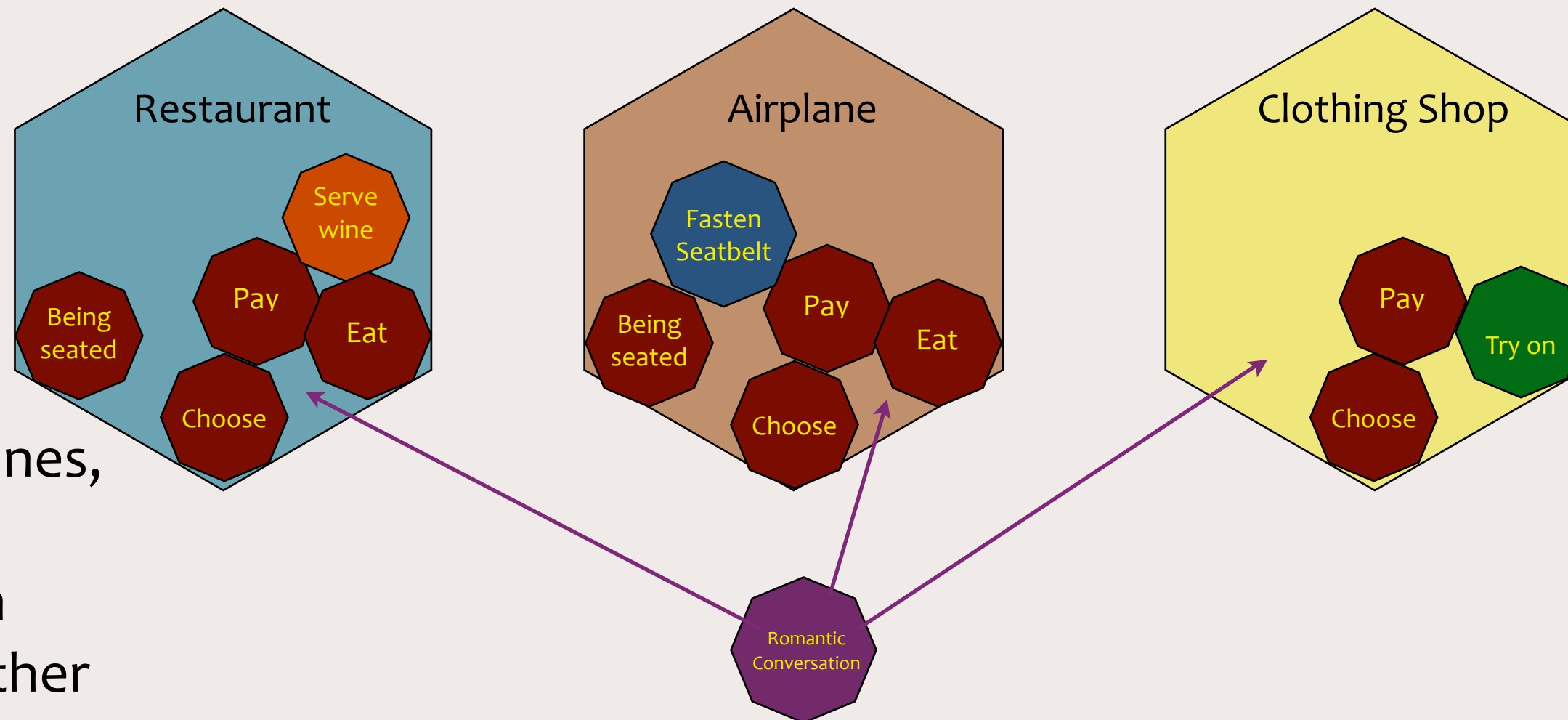
MOP's are composed of scenes, which can be generalized from one MOP to another

Restaurant — Serve wine, Pay, Eat, Being seated, Choose

Airplane — Fasten Seatbelt, Pay, Eat, Being seated, Choose

Clothing Shop — Pay, Try on, Choose

Romantic Conversation

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Interaction 6: Seat Selection

What can we tell the user that will help decide?

Before selecting seats, you must decide to do so

Decision Support

- *When you arrive at our restaurant, your greeter will assign you a table.*

- *If space permits, you can choose an available table that is suitable for your party.*

- *For airplane seating, select one:*

  - ☐ Airline assigned seats for my party

  - ☑ I will select seats for my party

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Interaction 6: Seat Selection
What makes these similar?

To select seats in this restaurant, follow these steps:
Prerequisite: You are in the restaurant

1. Identify the greeter

   A smile opens on the greeters face
2. Smile back
3. Tell the greeter how many are in your party and what area of the restaurant you prefer
4. Follow the greeter to your table and take your seats

   If you are not happy with the greeter's suggestion, repeat steps 2-4 until you are satisfied.

To select seats for your flight, follow these steps:
Prerequisite: You are logged into your internet airline account and your reservation page is displayed

1. Click **select/change seats**

   The seat map opens
2. Select the first passenger for whom you want to select a seat
3. The legend on the seat map indicates available and occupied seats. Click an available seat.
4. For each remaining passenger, select the next name and repeat step 3.
5. Click **Continue**.

What makes them different?

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Learning By Doing

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CULTURECOM

Presentation © 2014 Ray Gallon

Brief Pause

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Context is everything!

Lots of detail does not necessarily mean more knowledge

- The ability to generalise knowledge in a scene from one MOP to another is directly linked to the learner's ability to switch contexts

- When switching contexts, we sometimes have to **unlearn** some things:

  - Say out loud: 5 - 2 =

  -                              7 - 3 =

  -                              8 - 5 =

  -                              125843 - 2795 =

  > Context Change

- It is, therefore, important to give users hooks that allow them to connect between MOP's, especially when the context changes.

Active Learning: Learning by Doing

Networks of Scenes
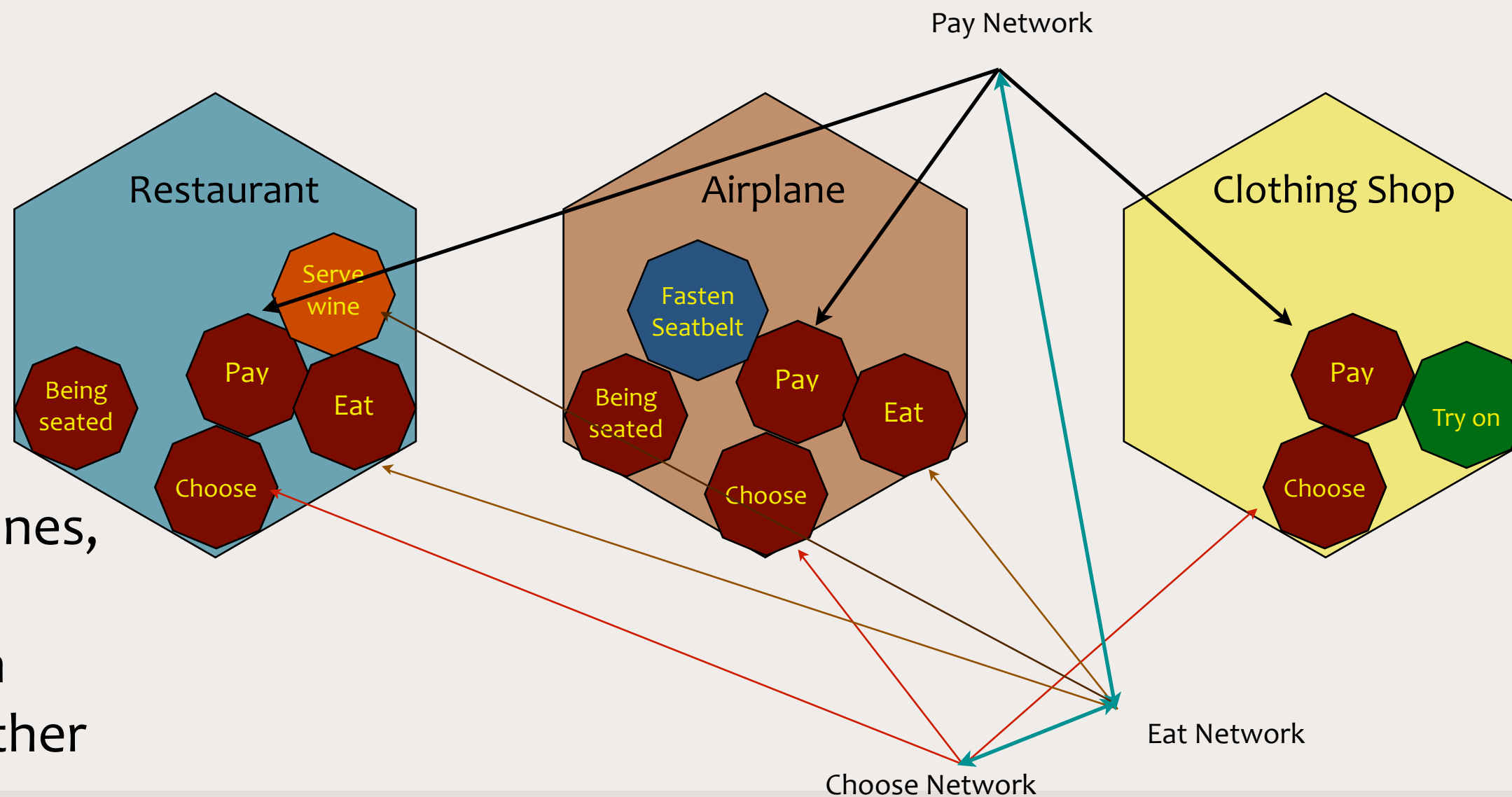
MOP's are composed of scenes, which can be generalized from one MOP to another

REF: http://cogprints.org/637/1/LearnbyDoing_Schank.html

@RayGallon

Active Learning:
Learning by Doing

Restaurant
Serve wine
Serve wine
Select Seat
Pay
Eat
Choose
Try out

We like

Airplane
Fasten Seatbelt
Select Seat
Pay
Eat
Choose

Clothing Shop
Pay
Choose
Try on

don't li…
Pay
Eat

@TransformSoc @RayGallon

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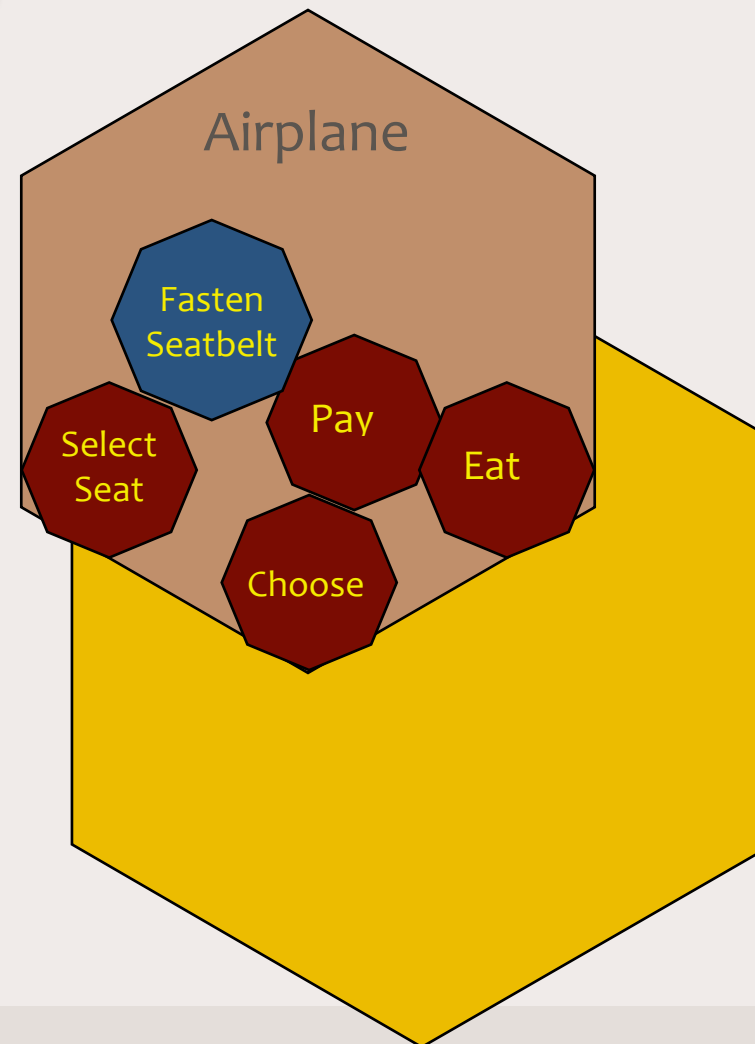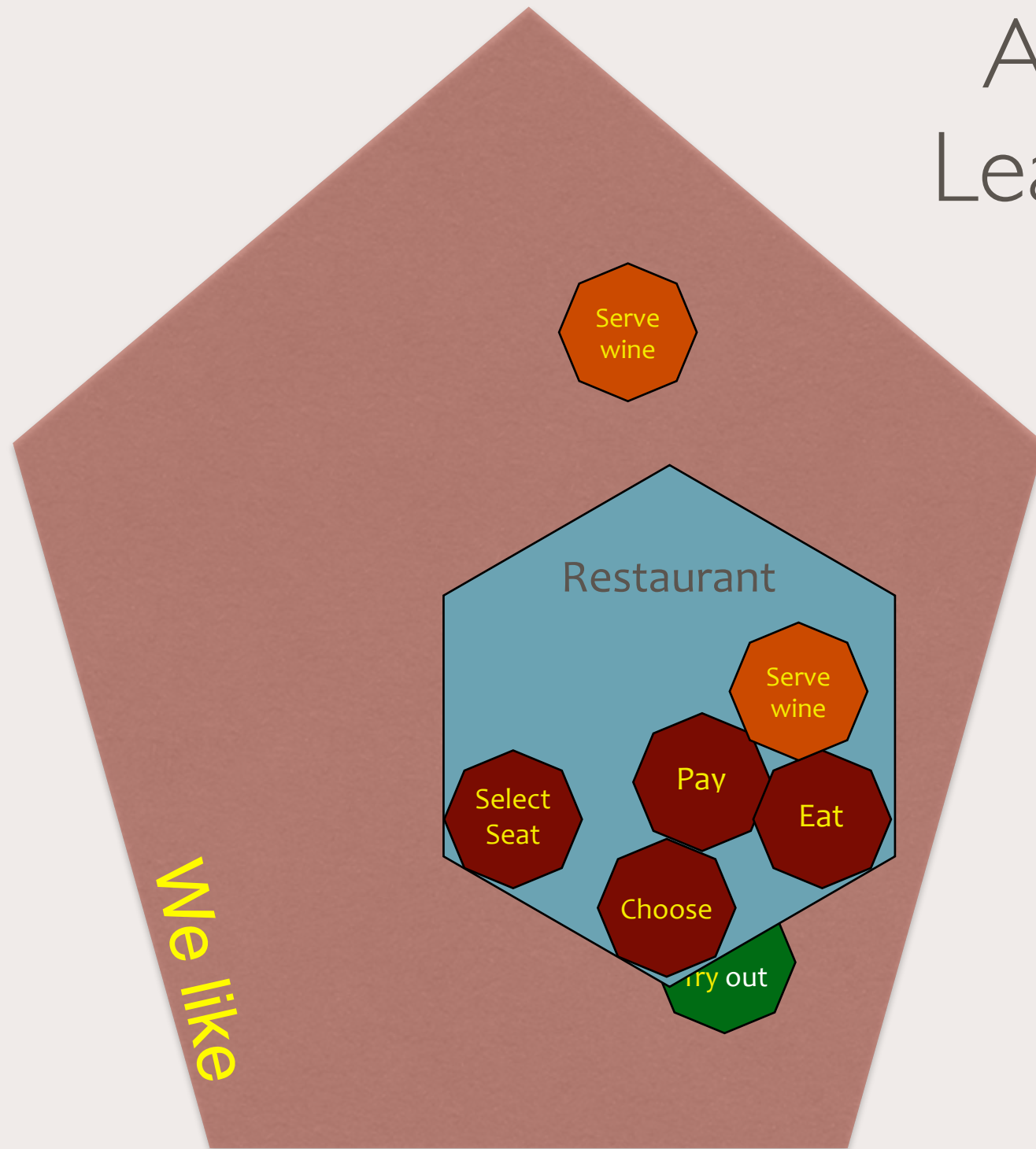
What Happens When We Learn by Doing?

■ If we learn about "Seat Selection" in a restaurant...

   ■ Are we learning something specific to the MOP "Restaurant?"

   ■ Are we learning something generalizable to multiple MOP's - i.e. a scene called "Seat Selection?"

   ■ Are we learning something about some more abstract MOP that has nothing to do with the current MOP or scene (e.g. "Judgement")?

■ You are the architect of this experience!

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The Cognitive Spiral

Bloom's Pyramid

+ RICHNESS OF CONTENT

OPPORTUNITY, PRACTICE

REFLECT ON AND EVALUATE THE FORM OF THE MESSAGE

REFLECT ON AND EVALUATE THE CONTENT

APPLY AND USE THE INFORMATION

INTERPRET EXPLICIT INFORMATION

RETRIEVE EXPLICIT INFORMATION
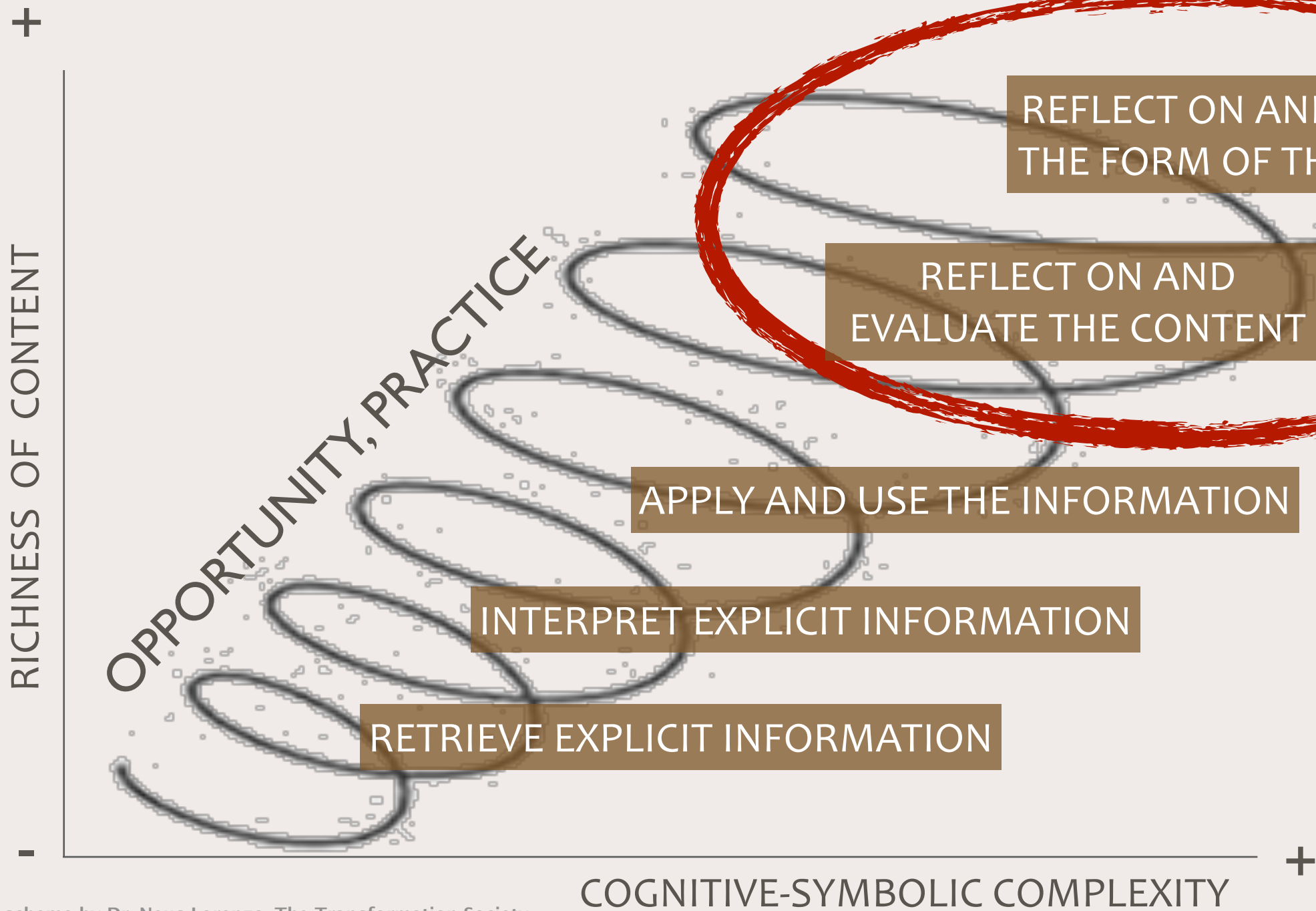
If you're here you can't get it wrong: EXPERT!

- +

COGNITIVE-SYMBOLIC COMPLEXITY

Adapted from a scheme by Dr. Neus Lorenzo, The Transformation Society

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Integrated Connective Competency

+ Cognitive construction and process reasoning

+Socio-cultural construction (information sharing, mentoring)

This corner is where your most expert users are

User Learning Space

WHERE IN THIS SPACE DO YOU WANT YOUR USERS?

+Thematic knowledge (SME)

+Code: Mastery of the language, interface, iconography...

...AND WHEN????

+ Individually significant contextualisation (contingency)

The architectures we design for our user/learners are the determinant factors

+Procedural Memorisation

Adapted by Dr. Neus Lorenzo, The transformation Society - from Phil Ball & Keith Kelly (2009) Ref: **http://ow.ly/dLK8g** & **http://goo.gl/Ul3A2**

Cognitive Bases: Connectivism - Learning is More Important than Knowing

- Knowledge is activated in the world as much as in the head of an individual.

- It exists through people participating in activities.

- Learning = process of creating connections and elaborating a network:
  - Organisation, information, data, feelings images.

- Learning is more critical than knowing.

- Perceiving connections between fields, ideas and concepts is a core skill.

- Currency (accurate, up-to-date knowledge) is the intent of learning activities - requires nurturing the networks

Essential Knowledge Components:
- Know how
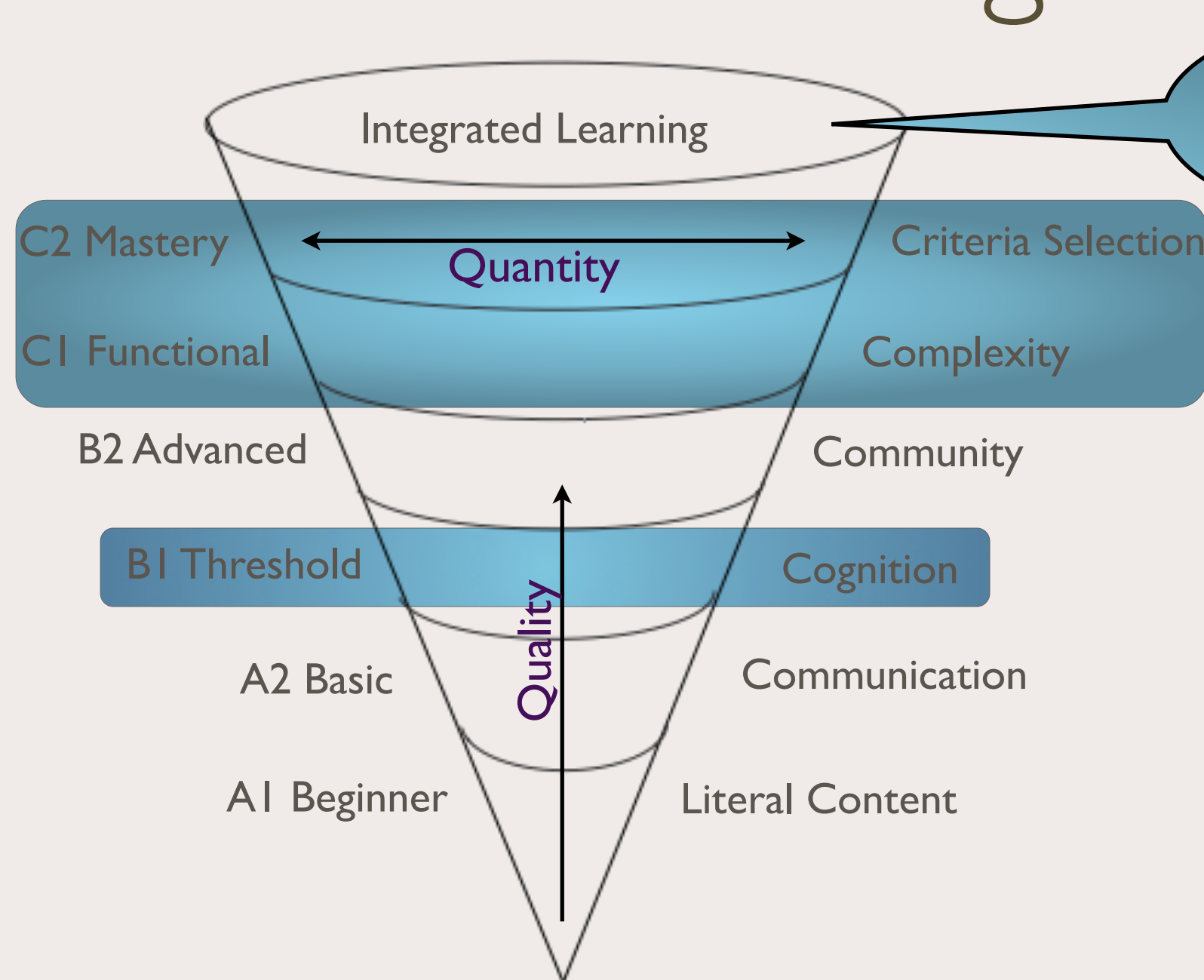- Know what
- Know where
- Know when

Implied:
- Know how to be
- Know how to be with others

Dimensions of Integrated Competency

Integrated Learning

Interfaces, hardware, software, user assistance, hands-on and conceptual combined

C2 Mastery

Criteria Selection

Quantity

C1 Functional

Complexity

B2 Advanced

Community

B1 Threshold

Cognition

Quality

A2 Basic

Communication

A1 Beginner

Literal Content

Quantity of information > contingent need

learner gets confused, sense of chaos

Can't keep track of it all

In moving from contingent need to confusion, we still learn more.

COMPLEXITY ≠ CHAOS!

Neus Lorenzo, The Transformation Society

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Let's Play Cards
(Interaction 7)

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Let's Play Cards

1. You each have six cards with words on them. Organize your deck in order from highest priority to lowest priority for you.

2. Compare your priorities with your neighbor(s) - 1 minute

3. Exchange cards with others in order to get the best panorama for your company/work situation - 2 minutes

4. Get together in groups of 4 and make a diagram as follows:

Let's Play Cards

Person 1
- Priority 1
- Priority 2
- Priority 3
- Priority 4
- Priority 5
- Priority 6

Person 2
- Priority 1
- Priority 2
- Priority 3
- Priority 4
- Priority 5
- Priority 6

Humourous

WHY
different or similar?
- Reason 1
- Reason 2
- Reason 3
- …

Pragmatic

Idealistic

Person 3
- Priority 1
- Priority 2
- Priority 3
- Priority 4
- Priority 5
- Priority 6

Person 4
- Priority 1
- Priority 2
- Priority 3
- Priority 4
- Priority 5
- Priority 6

5. Write each person's priority

6. List reasons for similarities and/or differences between group members

7. Exchange papers with other groups, and add a few words or a phrase that characterizes what you read.

8. Return the paper to the original group

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How Does It Make You Feel?

When you receive new information, you have to deal with emotional reactions

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Self-Organised Groups

"We made great UA and nobody uses it or they can't find it!"

Culture of information sharing and knowledge building, inside and outside the organisation.

- Google is the first instinct! WHY?
  - Look for community guidance
  - Use social networks to get answers
  - Consult and contribute to crowd sourced materials

The user decodes information so as to reconstruct it. S/he then recodes it into new knowledge.

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User Assistance has to be Googleable!

And needs to come up first...

"Finding is the new Doing"
–Ian Barker

Create your own stakeholder communities- including user/learners as full collaborators

Integrated Stakeholder Communities

- Not user groups or user forums

- Not a Facebook Page

- Integrated communities

- Everyone is a stakeholder:

  - *Internal – everyone, 100%*

  - *External -* consultants, customers…

Integrated Stakeholder Communities

Not Just Your Usual Favorite Beta Testers!

OFFICIAL BETA TESTER

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Integrated Stakeholder Communities

Primary objectives:

- Integrated, collaborative community

- Creates value

- Re-injects value into the system

Integrated Stakeholder (Learning) Communities

Let people know what you are tracking.

Make your cookies Public

Treat inside stakeholders and customers the same way

Turn users' tips and tricks into training materials

Attribute material you reuse in your UA — from both

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Creating More from Your Captured Value

Remember, it's an iterative process!

Nothing can buy you more customer loyalty than including them in your decision-making!

Your SME's and other colleagues, too!

I'm Ray Gallon - The Humanist Nerd

Research collaborator and principal, The Transformation Society, a new research and training institute in Barcelona, Spain

Owner/Consultant, Culturecom – specialist in business process improvement through communication

- 20 years in technical communication with major companies such as G.E. Healthcare, Alcatel, IBM, etc.

- Member, board of directors, Society for Technical Communication (STC)

- Past president, STC France

- Award-winning radio producer and journalist – CBC, NPR, France Culture, etc. and former programme manager, WNYC-FM, New York Public Radio

What We Do

- Analyse your needs and help you get a jump on complexity

- Help you design and architect a content strategy, user information systems, communication

- Work with you to capture value from your users

- Workshops, webinars, or training to help manage and adapt to change

Thank You

Pass me your business card
Let's talk!

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Blog: *Rant of a Humanist Nerd*

http://humanistnerd.culturecom.net

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