

```
ms
^C
--- google.com ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 15.453/15.453/15.453/0.000 ms
root ~ # ls
Desktop README
root ~ # cd /
root / # ls
bin dev home lost+found mnt proc sbin srv tmp var
boot etc lib media opt root shared sys usr
root / # pacman -Ss pidgin
extra/libpurple 2.6.6-1
  IM library extracted from Pidgin
extra/pidgin 2.10.1-1
  Multi-protocol instant messaging client
extra/pidgin-encryption 3.0-3
  A Pidgin plugin providing transparent RSA encryption using NSS
extra/purple-plugin-pack 2.6.3-1
  Plugin pack for Pidgin
extra/telepathy-haze 0.3.4-1 (telepathy)
  A telepathy-backend to use libpurple (Pidgin) protocols.
community/guifications 2.16-1
  A set of GUI popup notifications for pidgin
community/pidgin-fonomobutton 0.1.6-1
  Adds a video-chat button to the the conversation window
community/pidgin-libnotify 0.14-3
  pidgin plugin that enables popups when someone logs in or messages you.
community/pidgin-musictracker 0.4.21-2
  A plugin for Pidgin which displays the music track currently playing.
community/pidgin-otr 3.2.0-1
  Off the Record Messaging plugin for Pidgin
```

Coming out of your shell

Using UX workshops to your advantage in a techie/scientific setting

Jenny Cham & Paula de Matos

User Experience Analysts

Interdisciplinary science,
involving biologists, computer
scientists and mathematicians

Applying computing to solve
problems in molecular biology
research

e.g. Understanding role of genes in disease

European Bioinformatics Institute (EBI)

Part of the **European Molecular Biology Laboratory (EMBL)**

The five branches of EMBL

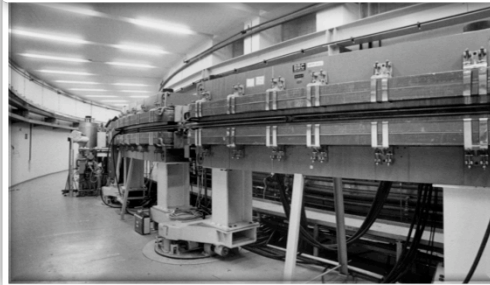
Heidelberg



- Basic research in molecular biology
- Administration
- EMBO

- 1500 staff
- >60 nationalities

Hamburg



Structural biology

Hinxton



Bioinformatics

Grenoble



Structural biology

Monterotondo



Mouse biology

Gene & Protein Summary

ORGANISMS



human
Homo sapiens



Gene



Expression



Protein



Protein Structure



Literature

6 protein structures available

STRUCTURAL BASIS OF HUMAN TRIOSEPHOSPHATE ISOMERASE DEFICIENCY. CRYSTAL STRUCTURE OF THE WILD TYPE ENZYME.

[View in PDBe](#)

Description

ISOMERASE

Method

x-ray diffraction

Experiment

Resolution: 1.7Å
R-Factor: 22.2%
Free R-Factor: 25.2%

Dates

Deposited: 22-06-2008
Released: 01-07-2008
Revised: 29-09-2009

Deposited by

Aguirre-Lopez, B., Arreola, R., Arreola-Alemon, R., Costas, M., De Gomez-Puyou, M.T., Gomez-Puyou, A., Perez-Montfort, R., Rodriguez-Almazan, C., Rodriguez-Larrea, D., Torres-Larios, A.

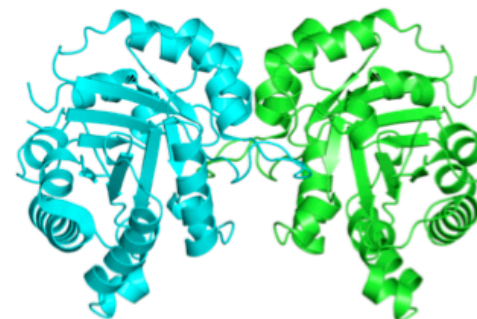
Primary Citation

Structural Basis of Human Triosephosphate Isomerase Deficiency: Mutation E104D is Related to Alterations of a Conserved Water Network at the Dimer Interface. *J.BIOL.CHEM.* vol:283 page:23254-23263 (2008)
[View citation in PDBe](#)

Chain A

Name: TRIOSEPHOSPHATE ISOMERASE
Residues: 250
Type: Protein
Organism: Homo sapiens
[View entries for the organism in PDBe](#)

Structural Domains



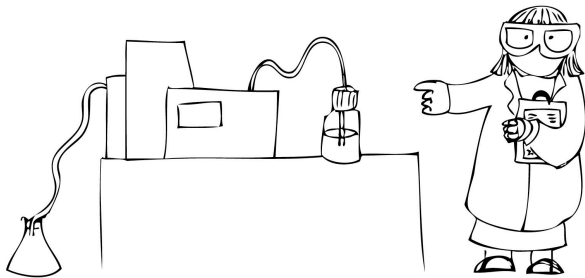
[Ribbon structure of 2jk2](#)

UX at the European Bioinformatics Institute



Scientists, bioinformaticians
in academia & industry

ENZYM RESEARCH



EMBL-EBI



Why workshops?





Experience report

Betreten
auf eigenen gefahr
Betreden
op eigen risico



What do I mean
by 'workshop'?

Ideas!

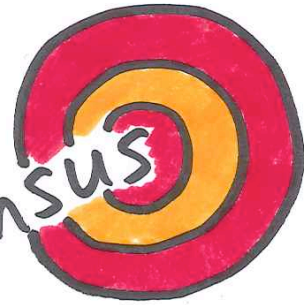
Conflict Resolution

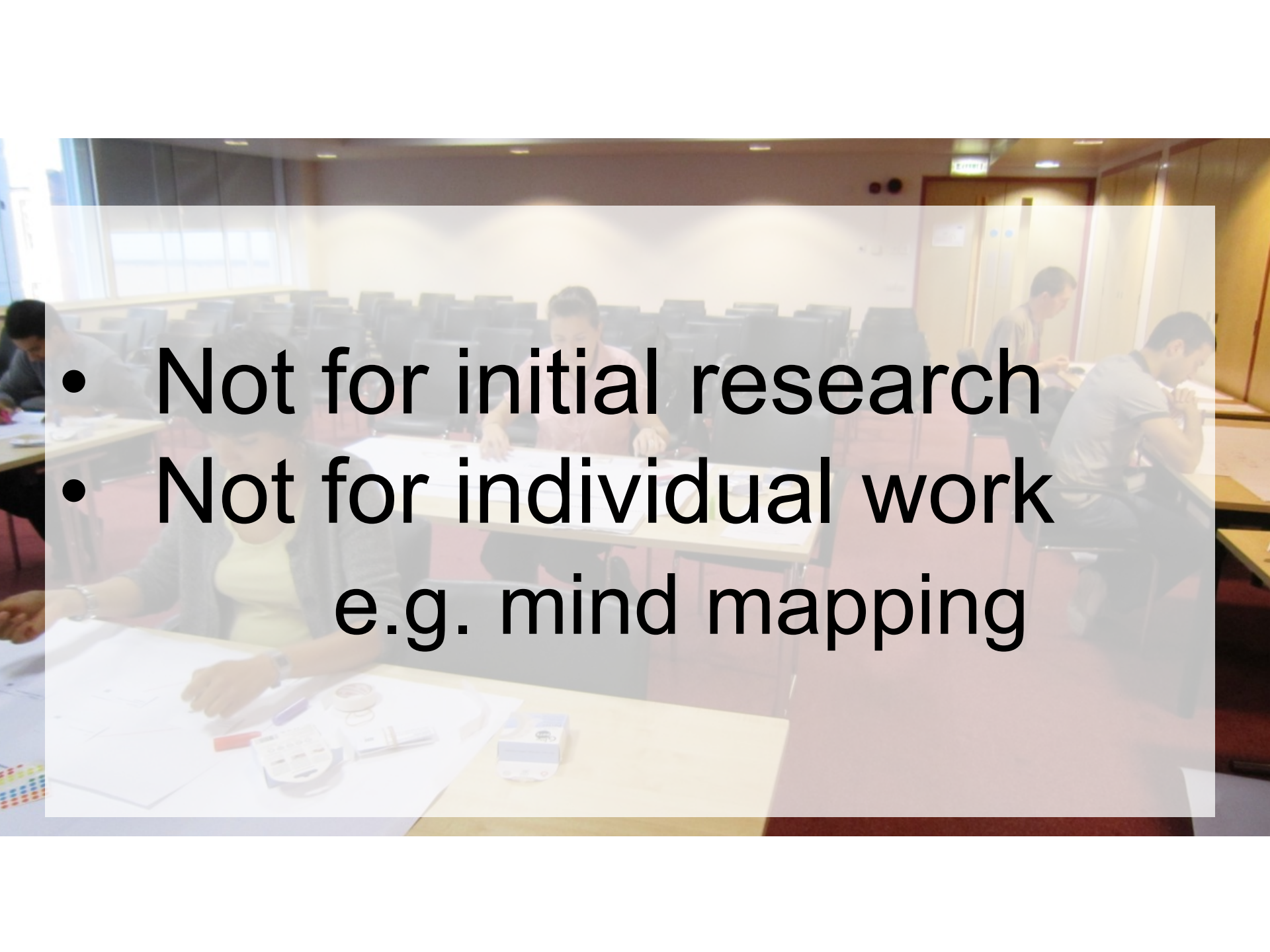
Blue sky

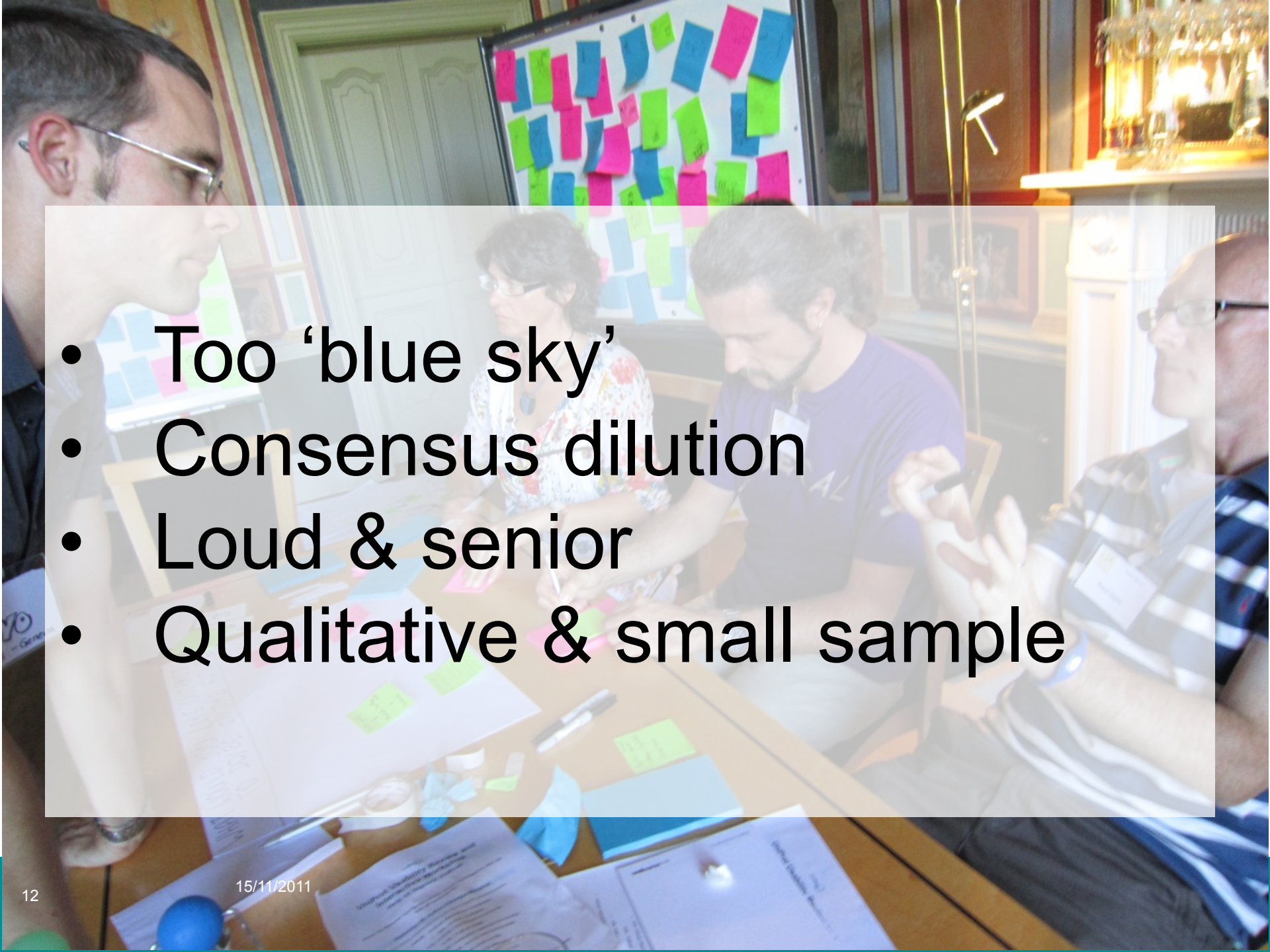
Consensus

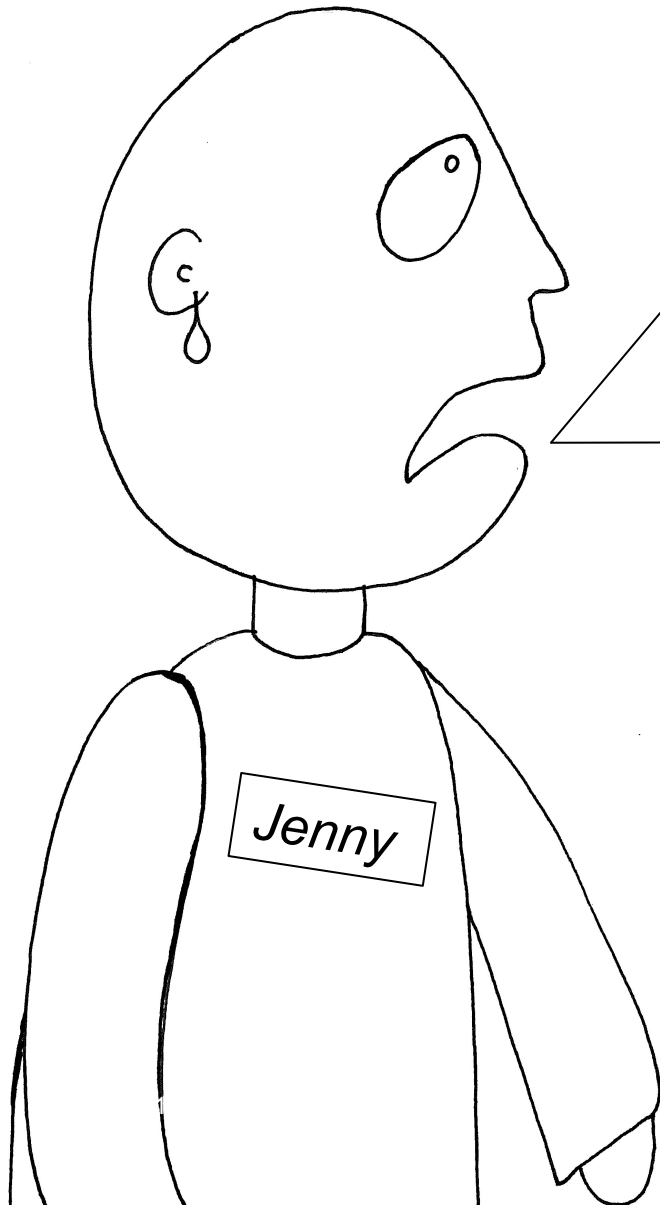
Prioritization

Training & Awareness



- 
- Not for initial research
 - Not for individual work
e.g. mind mapping

- 
- Too 'blue sky'
 - Consensus dilution
 - Loud & senior
 - Qualitative & small sample



Stupidly tight deadline,

no money at all,

very beginning of a
project

..... **NO!**



In advance



Just before



During

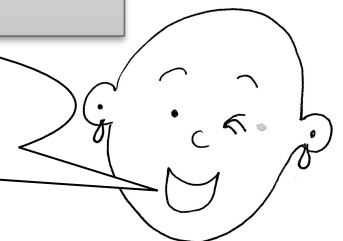


Straight after



Back in the office

...then lessons learnt





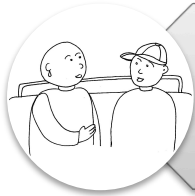
In advance



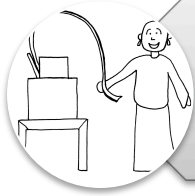
Just before



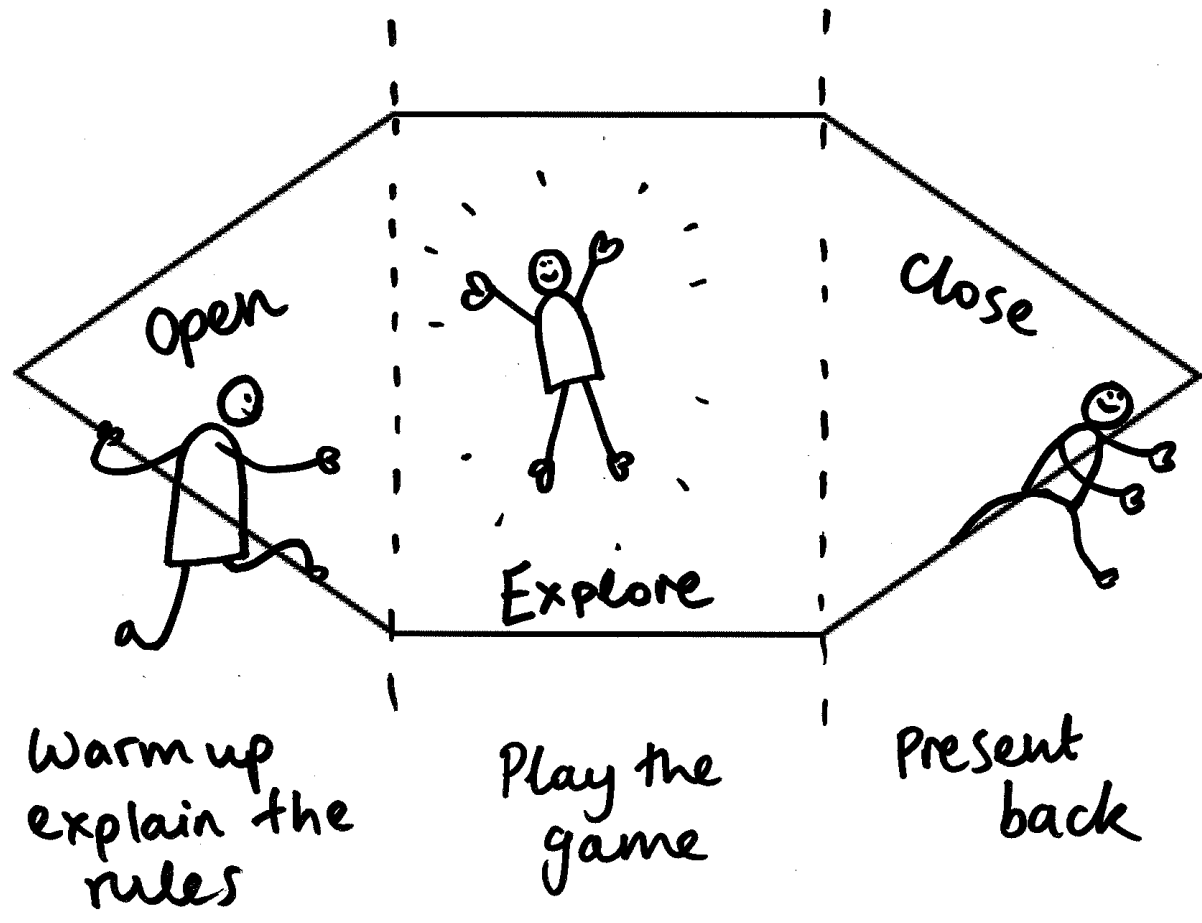
During



Straight after



Back in the office



Adapted from Gray et al "Gamestorming..."



AGENDA

WEBSITE REDESIGN MEETING...

Thurs 26th
May
14.00

START 14.00 in Courtyard Room

Mission - why are we here? Aims



Ice Breaker

... in teams

& WARM UP

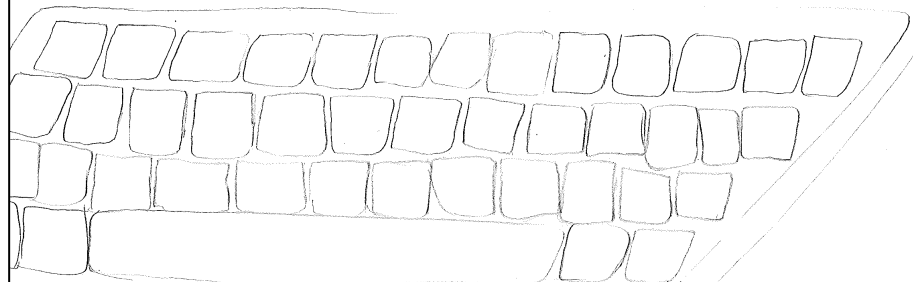
"3-15-3" Brainstorm Game

Blank Canvas Activity

Five "Whys?" Game?

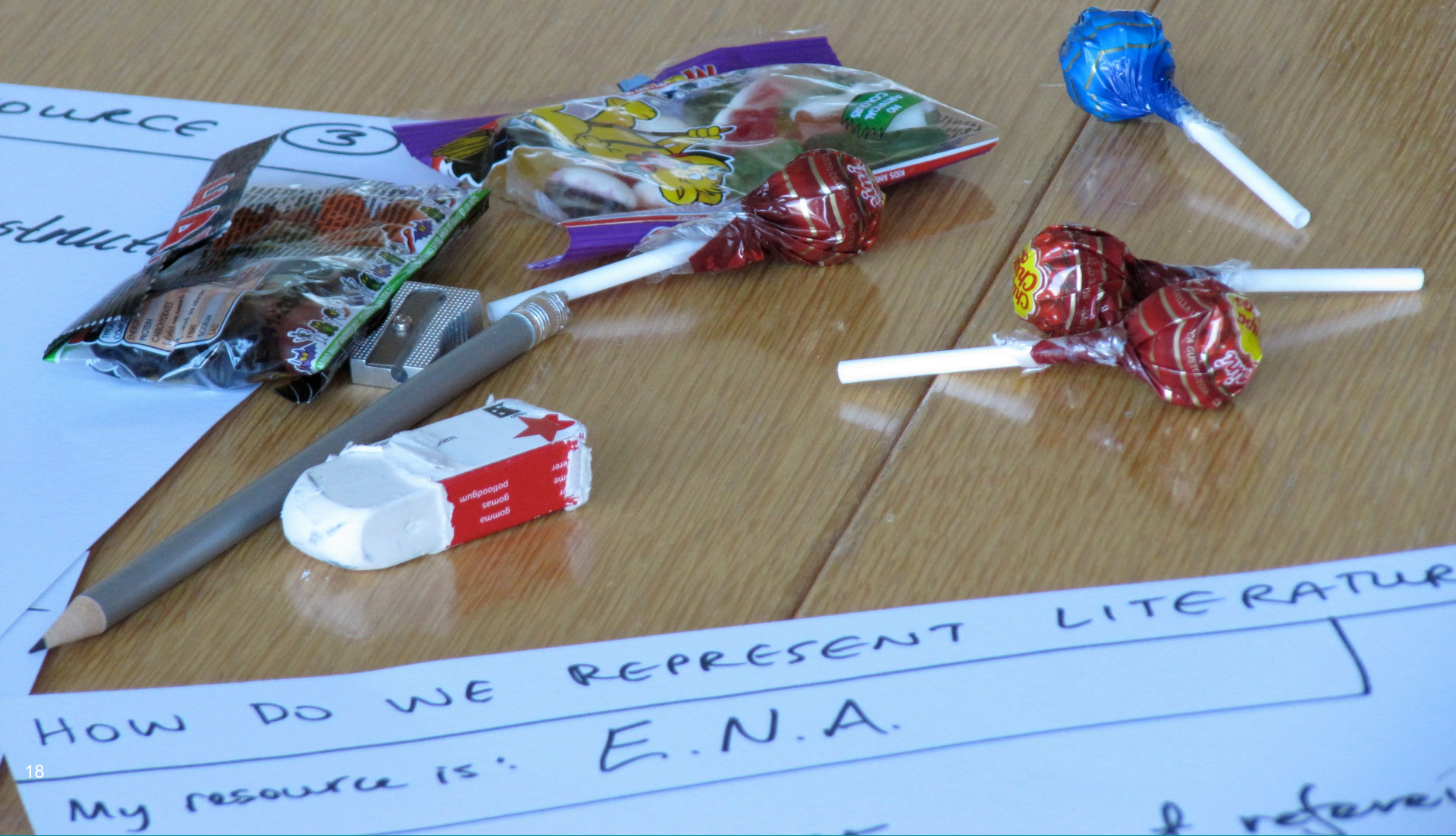
Thanks, sum up + close

End 16.00



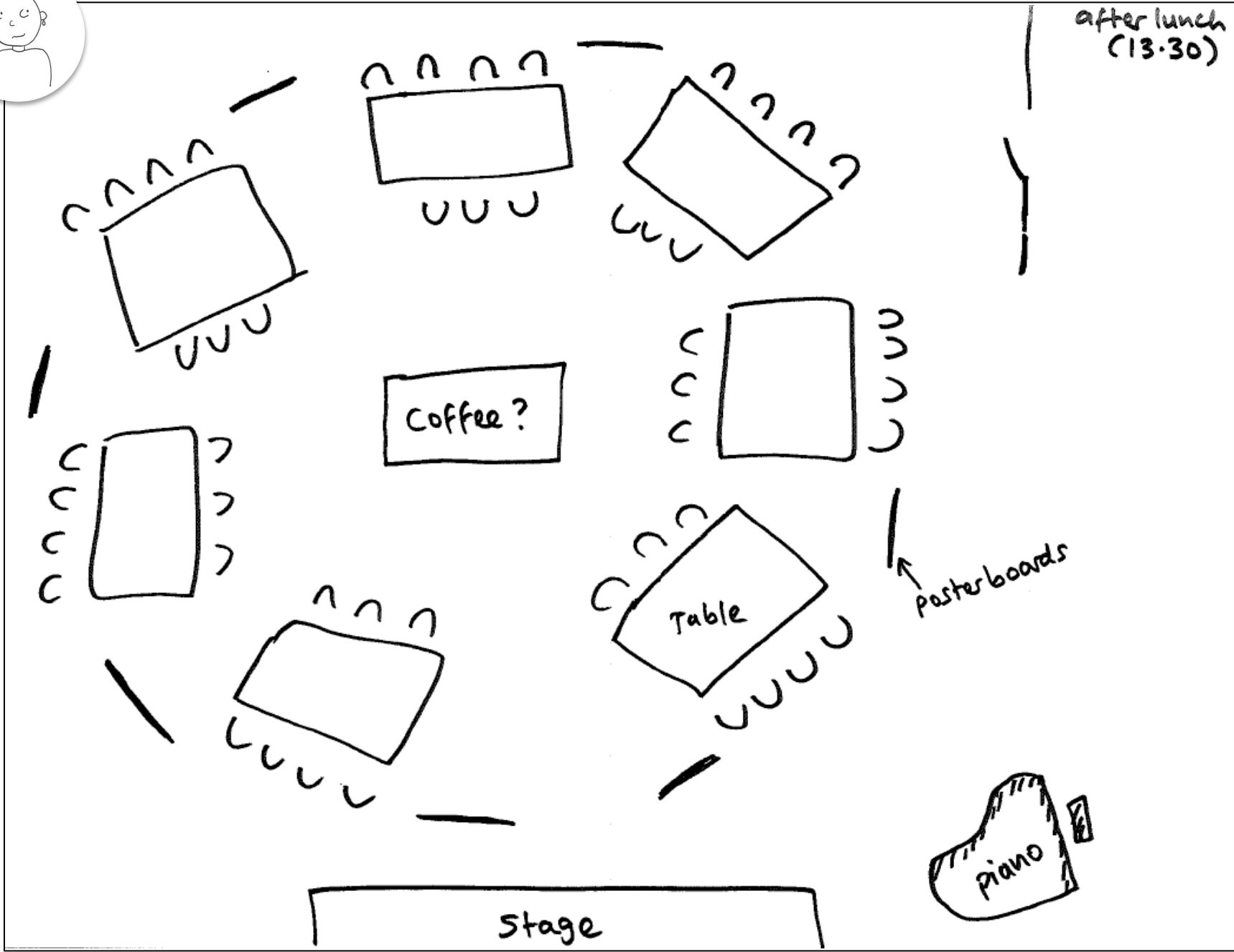


Sugar, caffeine, places to wander about





after lunch
(13.30)



Coffee?

Table

Posterboards

Piano

stage



Ron / occasional visitor

"The EBI website would be great if it were more like the NCBI site!"

Ron is a well-informed biochemistry researcher at an institute in the USA. He spends time doing research supervising PhD students and teaching biochemistry and bioinformatics; his background is in wet-lab work. He has published several papers and often travels around the world to take part in conferences and meetings with collaborators. He is familiar with the NCBI site and what the EBI is; however, he only comes to the EBI website if he has to. He uses Clustal or to look at a specific research group page.

His teaching materials nearly always use NCBI resources, only occasionally EBI ones. Sometimes he reads papers and wants to look something up in a specific resource at the EBI. Ron has arthritis. He can use a keyboard, but finds it difficult to click small links and buttons. He often uses Dragon Naturally Speaking and dictate emails. "EBI is an important organisation, but I don't use their site much - only when I need it and NCBI doesn't have."

DOMAIN KNOWLEDGE

9 / 10

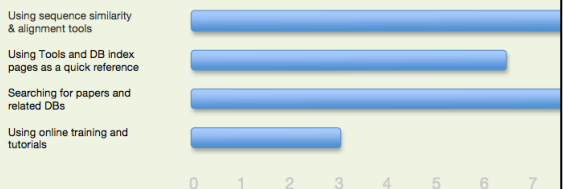
TECHNICAL KNOWLEDGE

5 / 10

EXPERIENCE

5 / 10

TYPICAL ACTIVITIES



DRIVERS

- Wanting to solve research problems
- Being better able to inform grant applications

GOALS

- Finding homologous sequences
- Investigating sequence evolution
- Identifying functional residues/targets for site-directed mutagenesis
- Making use of up-to-date teaching materials (for students)

PAIN POINTS

- Difficulty finding what tools are available
- Remembering which service



DOMAIN KNOWLEDGE

8 / 10

TECHNICAL KNOWLEDGE

5 / 10

EXPERIENCE

4 / 10

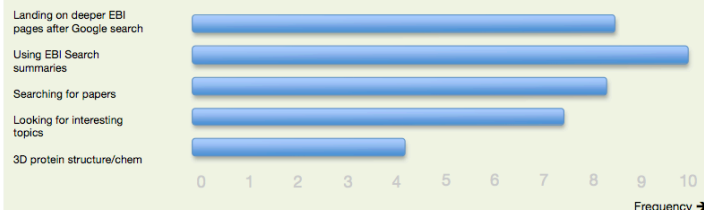


Terry / explores topics of interest

"The EBI website would be great if it could quickly give me explanations and information relevant to my research."

Terry is trained as a medical doctor; he is currently working full time in a clinical research laboratory. His research interests are in the field of cardiology, and in particular ion channels/ electrochemistry of the heart. He is reasonably technically savvy - he can use Ensembl Biomart for example, but is very short on time, so more often than not he uses PubMed, Google, OMDM and Wikipedia. He is aware of Ensembl and EBI services, but finds it so time-consuming to use, he usually uses it only as a last resort. Terry has dyslexia and finds small text and some typefaces hard to read. He often feels frustrated by websites with complex navigation. He much prefers documents with a clear structure and short paragraphs. He occasionally uses a screen reader to read aloud web pages and PDFs. "Life is too short to spend all day finding what you want on the EBI website - I'd rather read Wikipedia!"

TYPICAL ACTIVITIES



DRIVERS

- Wanting to help patients by finding new ways to treat arrhythmias
- Understanding how the EBI relates its data to scientific papers
- Wanting credible, reliable sources of data

GOALS

- Finding info on disease drugs and phenotypes
- Finding a summary of the state of the art for a disease area or set of gene loci
- Finding citations for papers
- Share information with colleagues

PAIN POINTS

- Obscure navigation
- EBI search behaviour
- Not finding provenance info
- Hard-to-read content
- Unhelpful error pages
- Not finding help when needs it



Hannah / looking to learn & be inspired

"The EBI website would be great if it told me what the EBI offers me as a biologist, and if bioinformatics is for me."

Hannah has come from the Czech Republic to study Genetics as an undergraduate in the UK. She has heard of the EBI and has one module on her course on bioinformatics, but would like to know more about it. Hannah is also exploring her options in looking for some work experience in a well-established company for her internship 'sandwich' placement year. She has an iPhone and expects a good experience on websites, because she uses the web and iPhone apps a lot. "Bioinformatics looks interesting, I think I might want to be part of this - it's where the future's headed"

DOMAIN KNOWLEDGE

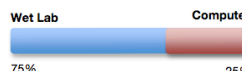
4 / 10

TECHNICAL KNOWLEDGE

2 / 10

EXPERIENCE

3 / 10



TYPICAL ACTIVITIES



DRIVERS

- Establishing career options
- Wanting to learn more about bioinformatics
- Wanting to learn more about the EBI in general

GOALS

- Finding out how to do a placement or have work experience at the EBI
- Finding online training material
- Finding local training courses
- Finding summary information about EBI activities

PAIN POINTS

- Not knowing where to go on the website
- EBI-specific or technical jargon and acronyms
- Not understanding relationships between DBs

Use your personas as a guide to recruit participants & form groups



#NO JUNK MAIL!



Researcher Input Needed – Help Us Create a ‘Tube Map’ of Molecular Biology for the EBI

When?

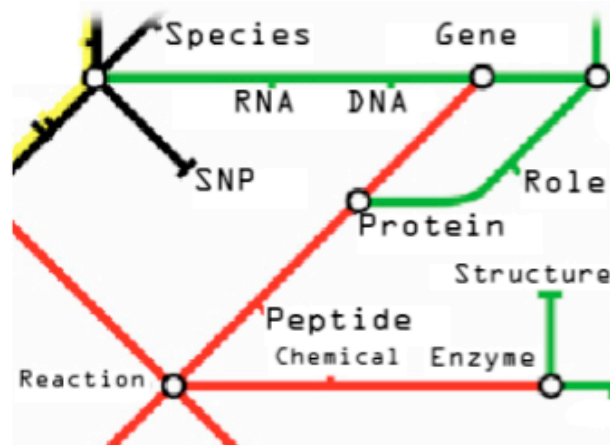
The European Bioinformatics Institute (EMBL-EBI) is planning to play a ‘Tube Map’ game at the Piemonte Bioindustry Park, **Centro Congressi, Sala Eridano on Thursday 6th October** as part of the SME event. This game is designed to help us create a user-friendly information architecture for the EBI website and its online bioinformatics services. The output looks a bit like the London Underground train network, the so-called ‘Tube Map’. We need your help to decide how to construct our map. **Dr. Jenny Cham** (user experience analyst, EBI) and **Dr. Gabriella Rustici** (Training coordinator for functional genomics, EBI) will be hosting this activity and it will be taking place between **10.00 and 12.30**.

Why?

We would like to include you in the design process for a new information map for the European Bioinformatics Institute (EBI) website (www.ebi.ac.uk). Your involvement will help us focus on the ‘user experience’ of lab-based researchers, so that our website will better suit researchers’ needs, and will be easier to use.

What?

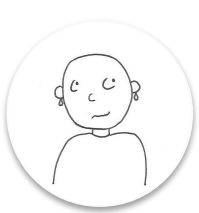
We are aiming to create a revised information architecture for the EBI website, and need your help to decide how to construct it. There is no need to prepare anything.



What do I get in return?

By taking part, you have the opportunity to influence the design of our whole EBI website. Furthermore, as a small token of our thanks, we will offer you a small gift, courtesy of EMBL-EBI.

What do I need to do?



Pre-workshop online survey

6. Which of the following most closely describes the nature of your work ?

- mostly 'wet' laboratory work (e.g. you are a scientist performing experiments in a lab, or manager/overseeing 'wet' research)
- mostly 'dry' work with computers (e.g. you are a bioinformatician)
- non-scientific work, but related to science/ research (e.g. you are in scientific outreach and training)
- non-scientific work, not involving science/research at all (e.g. you are an administrator)

<< Previous

Next >>



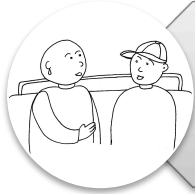
In advance



Just before



During



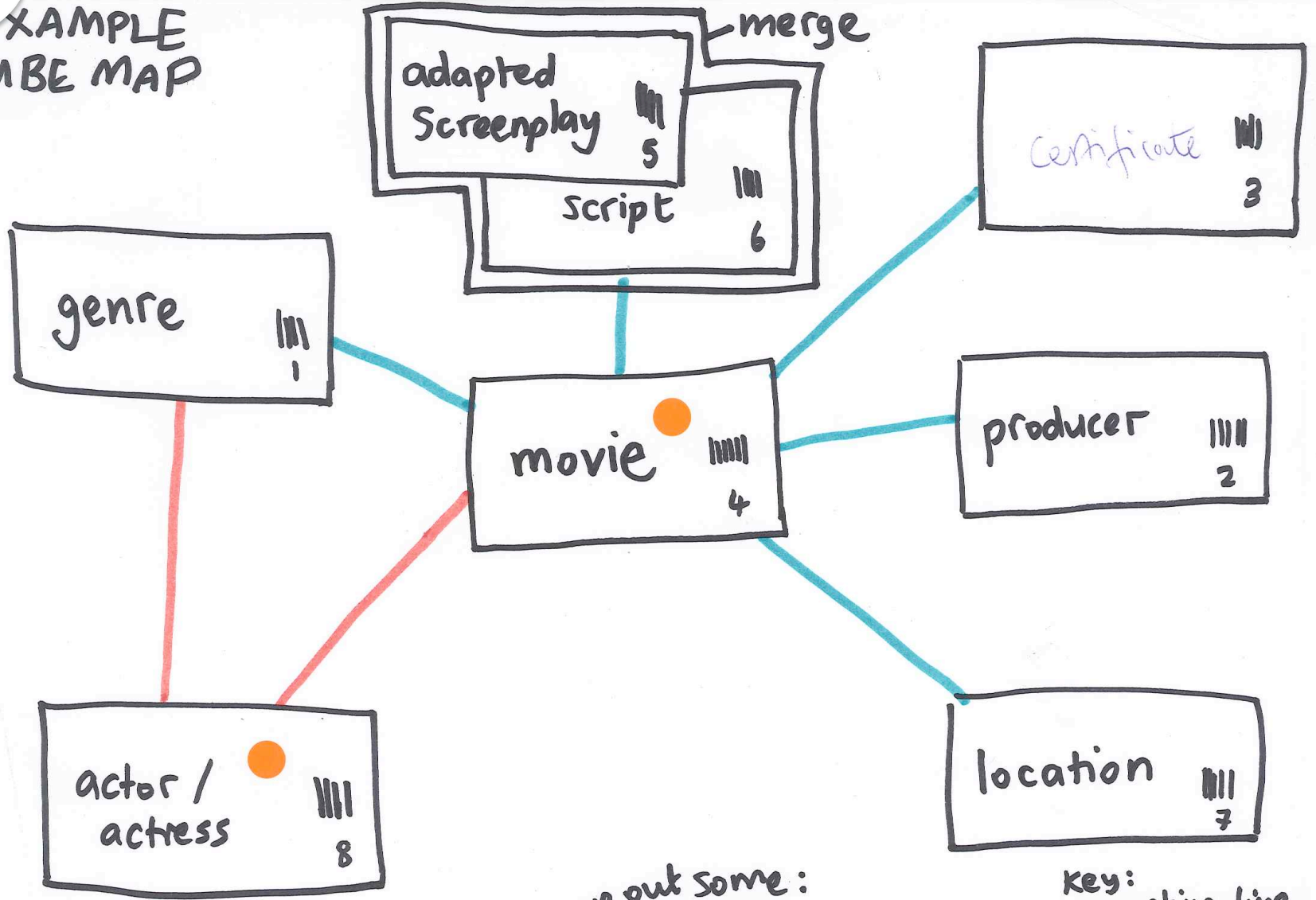
Straight after



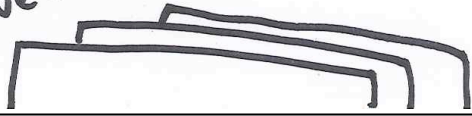
Back in the office



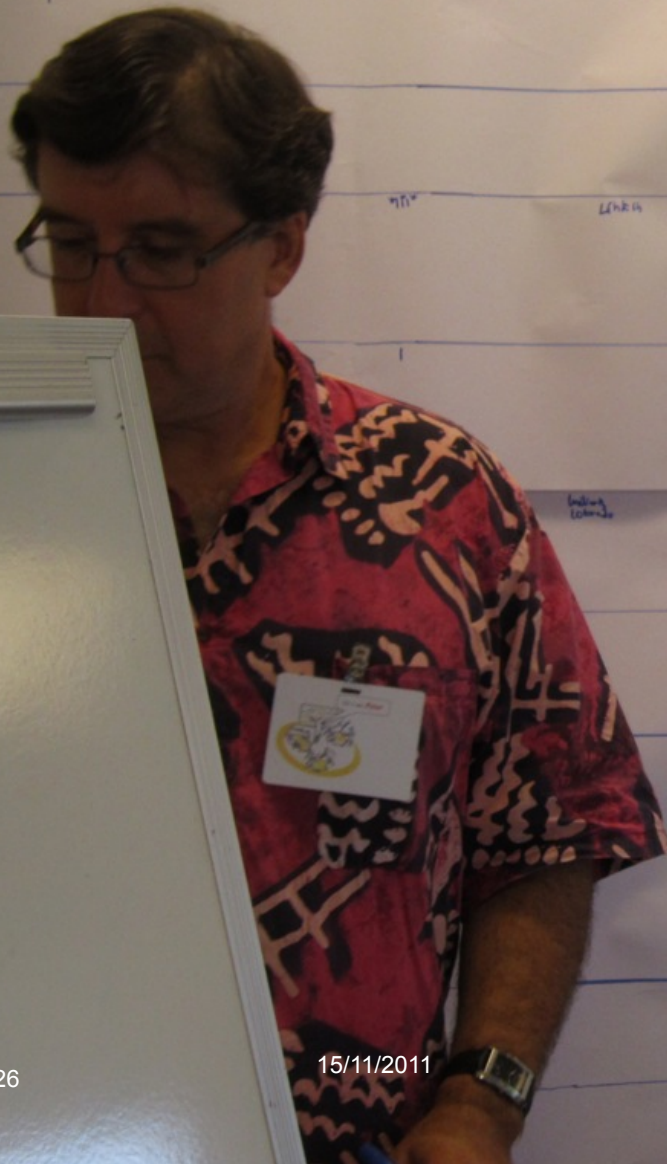
EXAMPLE TUBE MAP



leave out some:



key:
— acting line
— film line



EXTERNAL
 REFSEQ
 INTERP
 GOOGLE
 WIKIPEDIA
 OTHERS
 DON'T KNOW

TOTAL

240
 COMMENTS

Compare protein
 - with Prot
 - & Ensembl
 Dist match spaces

Why for EN Prot
 don't need to look
 into
 NCBI -> not sure
 MCL

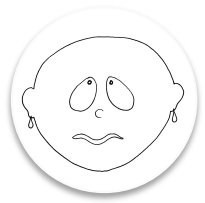
UP -> by PALTA
 NCBI to CAI TA
 look to look RDP

SOCIAL PRO
 Graph & wikipedia
 quality
 Very hard to look in
 graph of network

EN Prot/SP is more
 available than PR
 Many steps from RESE
 *File not in SP ->
 for alignment of these

Comparison
 EN Prot -> Ensembl
 Google, wikipedia
 Ensembl
 BLAST and gaps

Matrix template
 ready to fill in –
 imagine your final
 report



'I's like to
prepare



Contributes ideas

Stays positive

Isn't defensive

Checks/balances

15/11/2011



Stays neutral

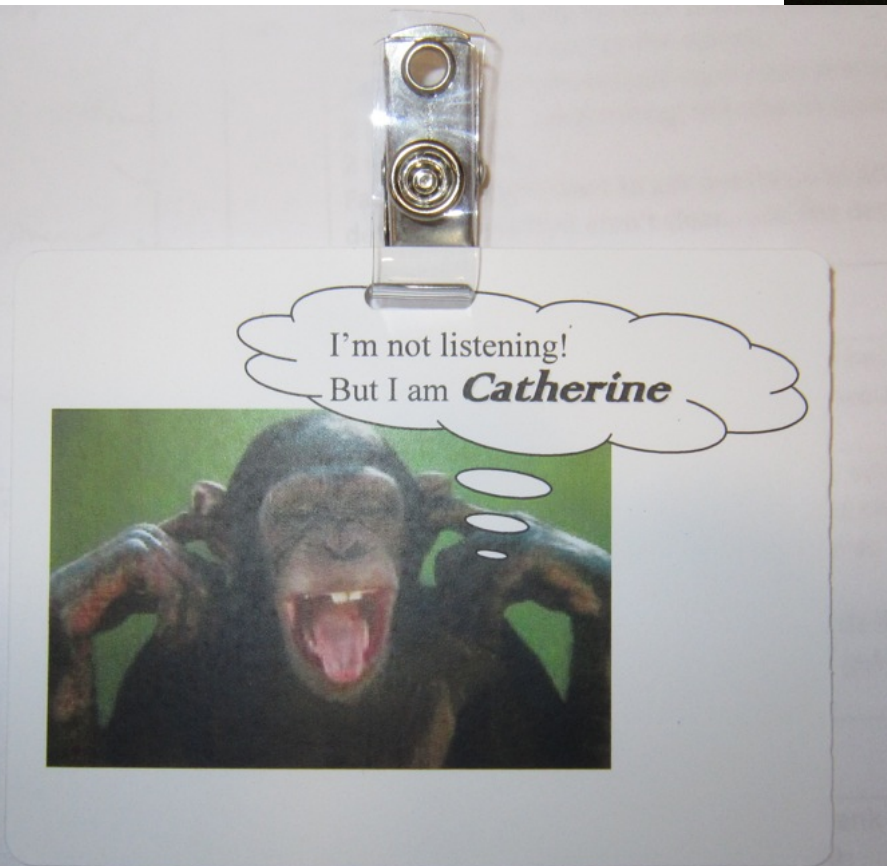
Doesn't evaluate

Doesn't contribute ideas

Coordinates/manages



Groups: size and who?





Multiple sets to avoid neck strain



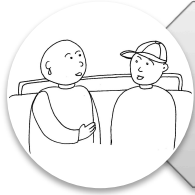
In advance



Just before



During



Straight after



Back in the office



THE GALLERY

HRH Queen of England



Success

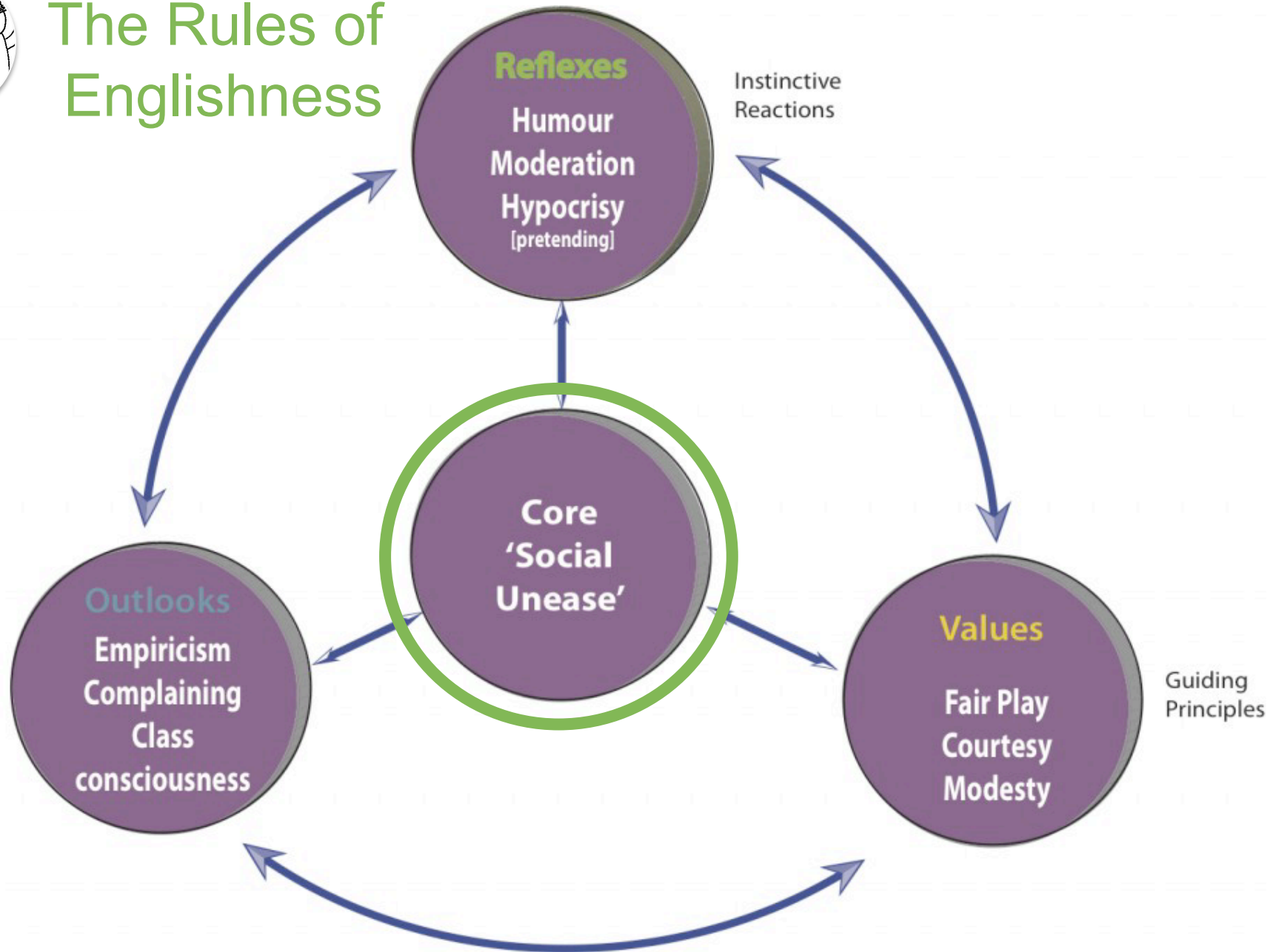


Bioinformatician





The Rules of Englishness



Adapted from Kate Fox 'Watching the English'



Who is in the room?





Presenting back



15/11/2011



Participant feedback







In advance



Just before



During



Straight after



Back in the office



Photograph artefacts

REACTION CONTEXT

INHIBITORS / ACTIVATOR
IC50 / MECH. OF INHIBITION

DIFFER

Ki

IC50

assay
PARAMS

DIRECTION
MECHANISM

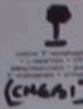
SOURCE
[Lit+Sp]

DETAILS OF
ALLOSTERIC
EFFECTS

EFFECT

more
info

PATHWAY SEGMENT (IN WORDS)



UP
DOWN

- + Interactive panel

MOLECULAR
INTERACTION
PARTNERS

ACTIONS

PROTEINS
INVOLVED

DIRECTION
MECH
ENERGY

EXPORT
CUSTOM

EXPERIMENTAL
PROCEDURE

SOURCE
[Lit+Sp]

DESCRIPTION

BROWSE
VIA INTERA-
CTIVE
IMAGE

eg. ?

LITERATURE

- DISEASE
- FUNCTION

eg G6PDH
Related literature

KINETIC CONSTANTS (AS PROPERTIES
OF THE ENZY.)

Km

Kd's

DIFFER? control
efficient

SPECIFIC
ACTIVITY

kcat

kcat
Km

PARAMETERS

SOURCE
[Lit+Sp]

Temp
pH
buffer

PURIFICATION
DETAILS

E-MAIL OR
DELEGATE

eg BBC send to
a friend

HOW TO USE
HERE?

REACTIVE
LIKE

CUSTOM
VIEW

HOME

SUMMARY
CANVAS

PATHWAY
CANVAS

INTO
LITERATURE
TAB

UP / BACK

CLICK TO
SEG DIFFER
CONSTANTS /
ANNOTATION

UPSTREAM/
DOWNSTREAM
INTERAC-
TION

GO TO
SOURCES

GO TO
PATHWAY
CANVAS



In advance



Just before



During



Straight after

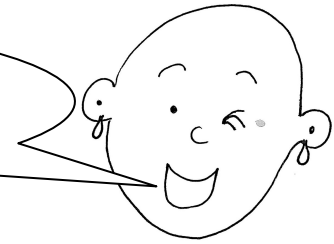


Back in the office



- Collate stuff straight away
- Involve software developers and stakeholders
- Whittle it all down to ~2 big sheets
- iMovie some interesting clips
- 300-400 word exec summary
- Present back with clips
- Report with recommendations

...then lessons learnt



“But this is just silly!”







PRIORITY POKER

Discussion

Simple works

TEAM: ^{MOUSE} CODE'S NAME: Phil Goetz
MY TYPICAL DAY AT WORK

JCVI Prokaryote Automatic Annotation

Once per month:

Download Uniprot

② Build Uniprot DB:

↳ accession, record, protein name, symbol, taxon, physical evidence

Build protein ontology:

Record synonyms from Biothesaurus, Uniprot, PDB

Find protein families: members in Swissprot: ③

PRK, Fy1, Ig, TIGRfam

Record protein family subset relations Uniprot PDB

→ Build DB of proteins known to exist, from ChEMBL, Swissprot

Build Panda NR:

Download NCBI: NR, taxonomy
↳ protein seq, record accessions, taxon ID, Uniprot PDB

Gene calling:

BLAST ORFs against

Autoannotate:

BLAST genes AA against Panda

Take annotation from curated sources:

TIGRfam, Pfam, PRK, ChEMBL, Mandel, Swissprot ③

47
links every station

Key to tubelines:

- : movie line
- : acting line
- : major station

my own
Book / Novel

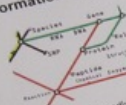
director 7

location 10

genre 6



Tube map information architecture game



We are aiming to create a user-friendly information architecture for the EBI website, and need your help to decide how to construct it. We are planning to have a rehearsal meeting to play our IA game on Tuesday.

Date: Tues 9th August 2011
 Time: 9.30 - 11.00
 Where: Portico 2
 Facilitators: Jimmy Chan and Ewan Birney
 Observers: Informa Information Architecture working group

Confirmed Attendees

Paula Metcalfe (curator)
 Laura Clarke (Paul Flock team)
 Marky Summers
 Interflora: Poo Jones
 Ewan Birney

Competition

Competition

Chat

REPORT IN CASE

Molecular Interaction
 Interaction between two proteins, or protein and DNA

Molecular Interaction
 Interaction between two proteins, or protein and DNA

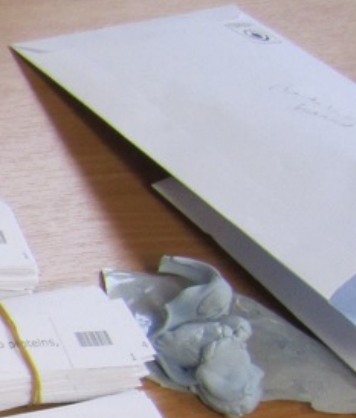
Molecular Interaction
 Interaction between two proteins, or protein and DNA

Molecular Interaction
 Interaction between two proteins, or protein and DNA

Molecular Interaction
 Interaction between two proteins, or protein and DNA

Molecular Interaction
 Interaction between two proteins, or protein and DNA

Molecular Interaction
 Interaction between two proteins, or protein and DNA



Refs.

- **Gamestorming: A Playbook for Innovators, Rulebreakers, and Changemakers** (2010)
Dave Gray, Sunni Brown, James Macanuffo
- **Microsoft Desirability toolkit**
Good article on <http://uxmatters.com>
- **Watching the English** (2005)
Kate Fox



Love your audience!

Thank you
for

Listening!