

Human-Computer Interaction

CS 449 | 649 – F26

Week 4: Sept 28 – Oct 2

Interviews (recap)
Drawing insights from data
Affinity diagramming

* Updated Sept 22 2026



Week 3 Recap

Understanding people: Personas, Empathy + journey mapping, Exploratory methods, Interviews

Reminder - Week 3 To-Do & Studio Prep (P4)

D2 design notebook entry **12pm** the day before your studio

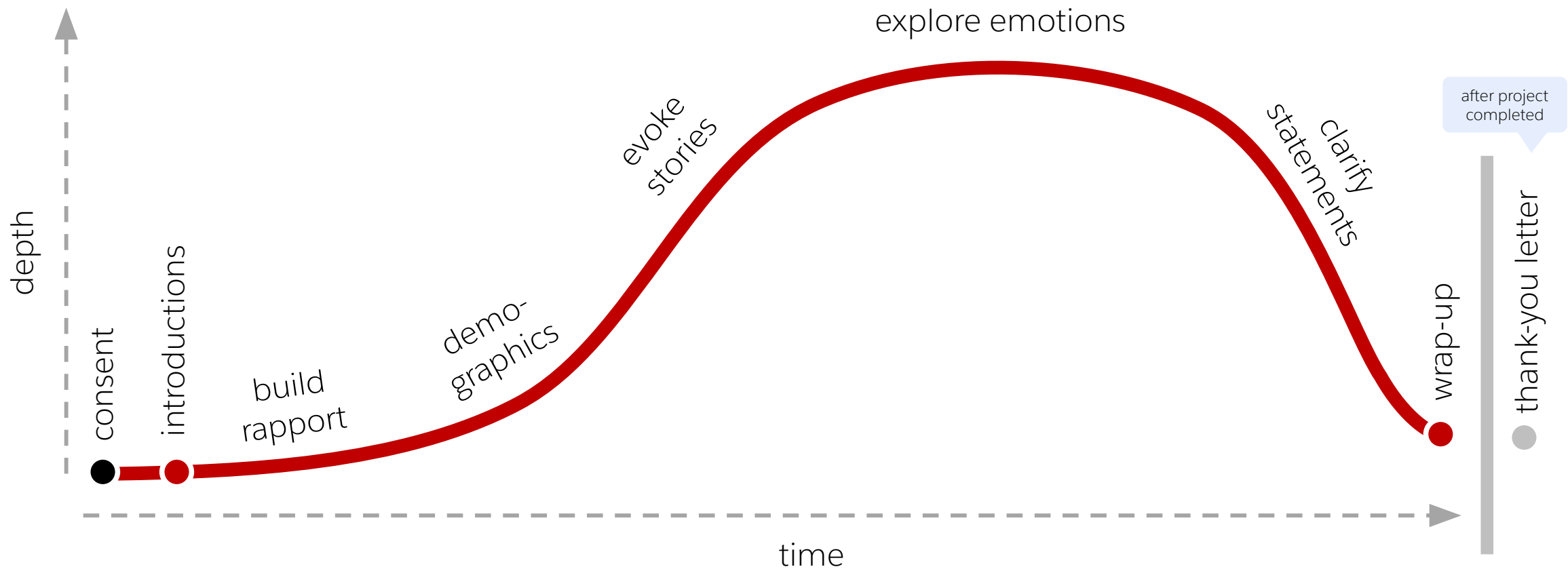
P4 – Schedule the first 1-2 informational **PO1a** interviews for the week between the Week 4 and Week 5 studios.

Conduct mock ("pilot") interviews with the two 449 / 649 classmates (outside your team) that you recruited as part of P3

Interviews (recap)

What (not) to do, tips and tricks ...

Ideal Interview Timeline



Ineffective Interview Summary... What not to do:

Go through a checklist of questions

Ask short-answer, closed questions

Leading questions that bias participants towards a particular answer ...

Ask questions that encourage generalizations ...

Interrupt the person ...

Shoehorn the person's words into your world-view, ignoring the specific terms they use and substituting your own ...

Correct the person or attempt to teach them ...

Don't look at the person ...

Look like you don't want to be there ...

Effective Interview Summary... What you should do:

Learning to see the world through the person's eyes...

Ask open-ended questions, encourage stories ...

Don't ask closed, binary questions ...

Always ask why: be curious, and let people teach you ...

Look for inconsistencies: it reveals implicit needs ...

Look for non-verbal signs ...

Don't be afraid of silence ...

Never suggest answers: keep your question neutral ...

Keep questions concise: 10 words ...

Stick to one question at a time, one person at a time keep it concrete – never say “usually”, instead ask about a specific and recent event
e.g., “tell me about the last time you ...”

Hints & Tips

You don't need to use a tool like Google Forms ...

Find a good way to record answers and notes (paper, type in doc, etc.) ...

Write a **script** so you know what to say and do during the interview ...

You should improve your questions based on the mock-up interview ...

Don't skip consent: doing so could have serious repercussions ...

Be safe when conducting interviews with the public ...

... see recommendations on "Resources" page on course website

Drawing Insights From (Interview) Data

Analysis and synthesis

How do you get data? Interviews!

Interviews generate data for your UX research

Where does data come from?

- ... Notes from interview session (primary source for this course)
- ... Transcripts (not allowed for this course)
- ... Images / Video/ Screen recordings (not allowed for this course)

Encourage participants to think out loud!

Work in pairs (one interviewer + one notetaker)

Today we'll think about how we use this data

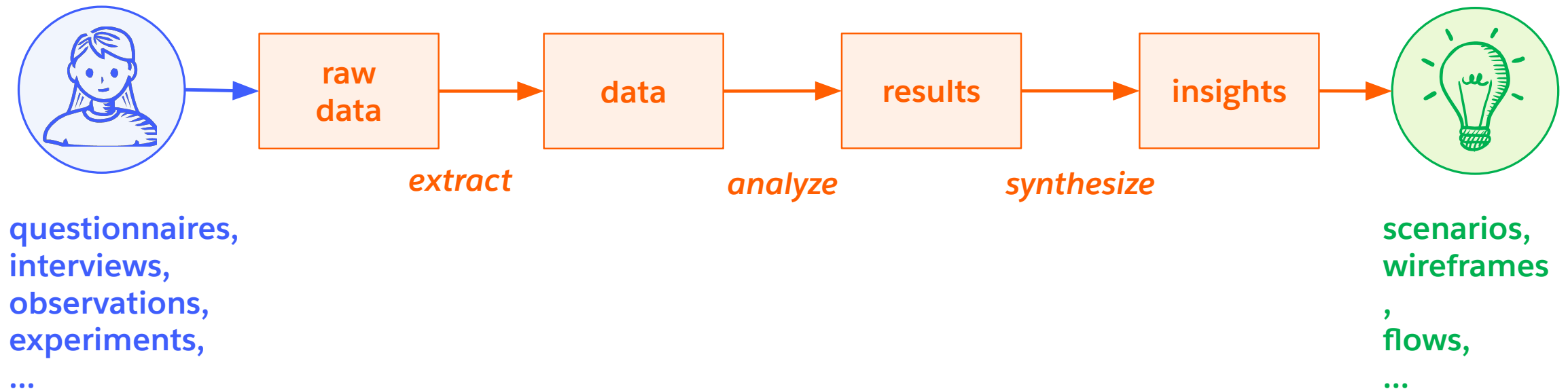
From Raw Data to Insights

There are typically three high-level steps to move from raw data to insights:

- ... data is extracted from raw data

- ... data is analyzed to form results

- ... results are synthesized to form insights



Analysis and Synthesis

Analysis is a description of what was observed, but not necessarily drawing any deeper meaning (yet):

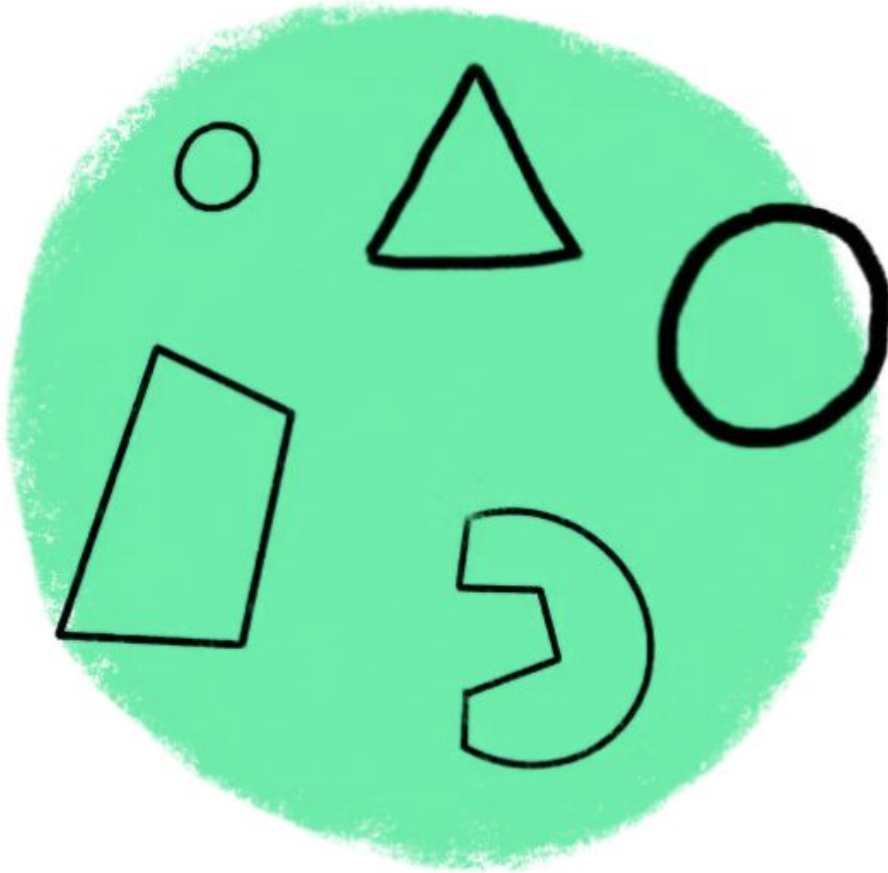
- ... Writing quotes from an interview onto sticky notes to be affinity mapped
- ... Entering observations from a usability test into a spreadsheet
- ... Coding sections of text in an interview transcript

Synthesis combines and goes beyond individual pieces of data extract from analysis to develop new knowledge:

- ... Forming groups of notes in an affinity map
- ... Building themes from different codes across multiple interview transcripts
- ... Combining multiple themes into higher-level insights

Analysis

Breaking something down into parts

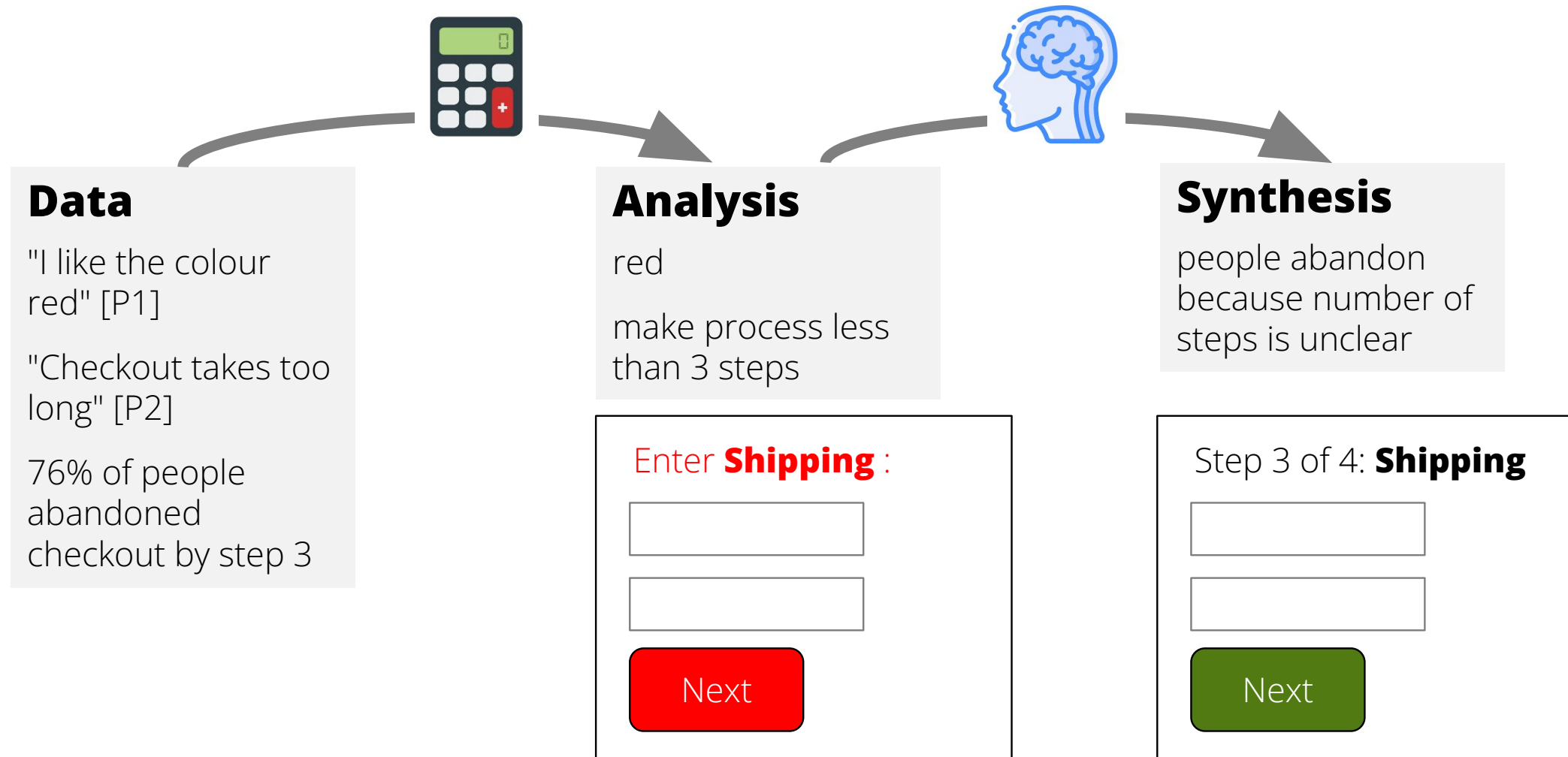


Synthesis

Combining separate elements into a whole



Synthesis is Important for Innovation

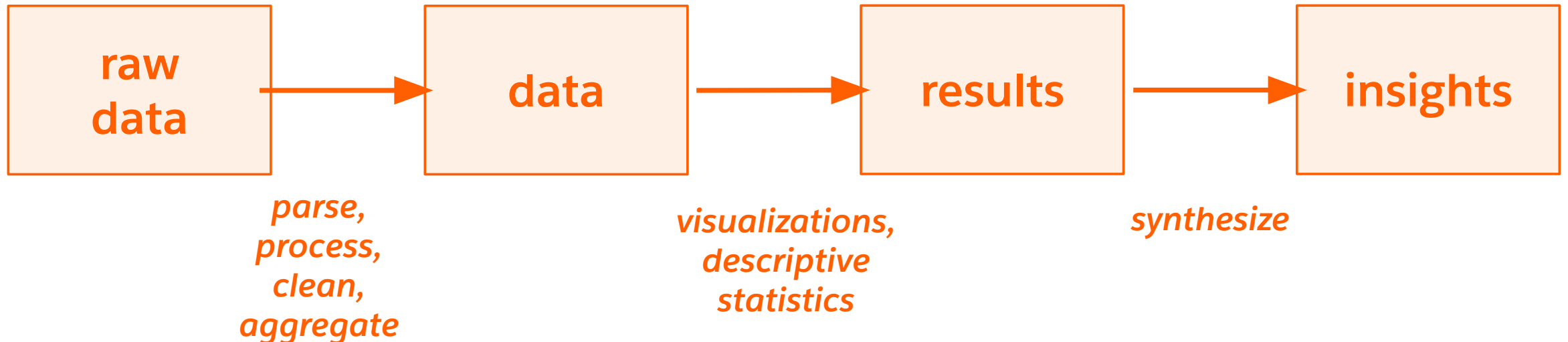


From (Quantitative) Raw Data to Insights

Raw data is highly structured and can be represented numerically ...
... closed-ended questions, experiment logs, etc.

Data is extracted and analyzed computationally

Creating insights out of results requires synthesis ...
... looking for patterns, combining quantitative and qualitative results



From (Qualitative) Raw Data to Insights

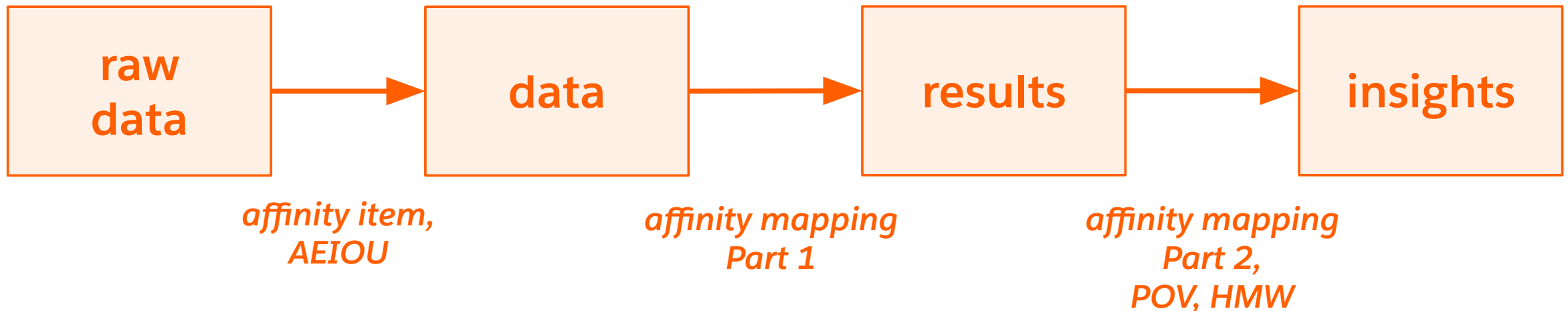
Raw data is unstructured text, audio, photos, video ...

... questionnaire/interview responses, observations, brainstorming, etc.

Data is extracted manually using guidelines and more subjective methods, analyzed using affinity mapping

Creating insights out of results requires synthesis ...

... looking for patterns, combining quantitative and qualitative results

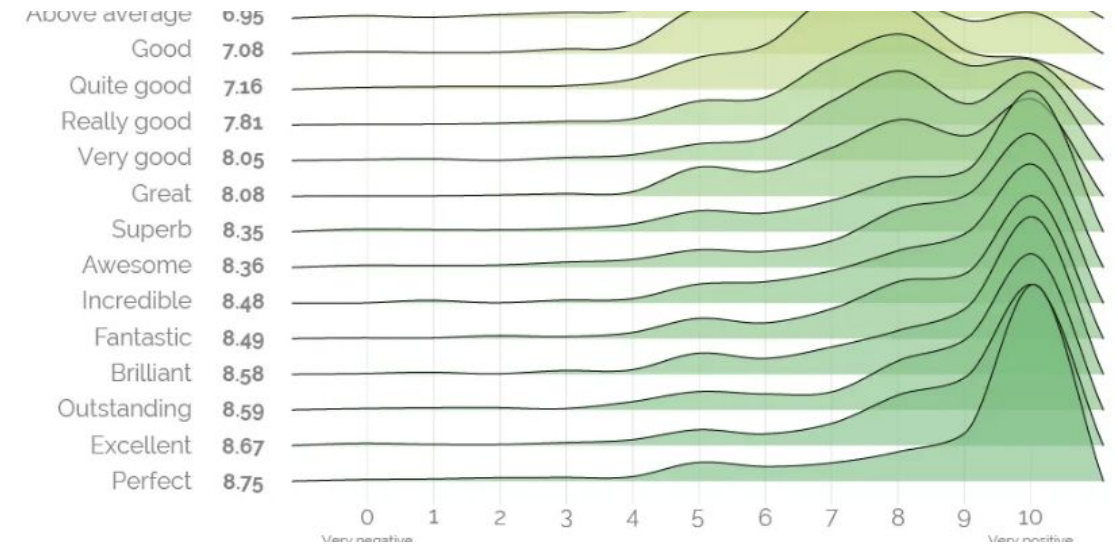
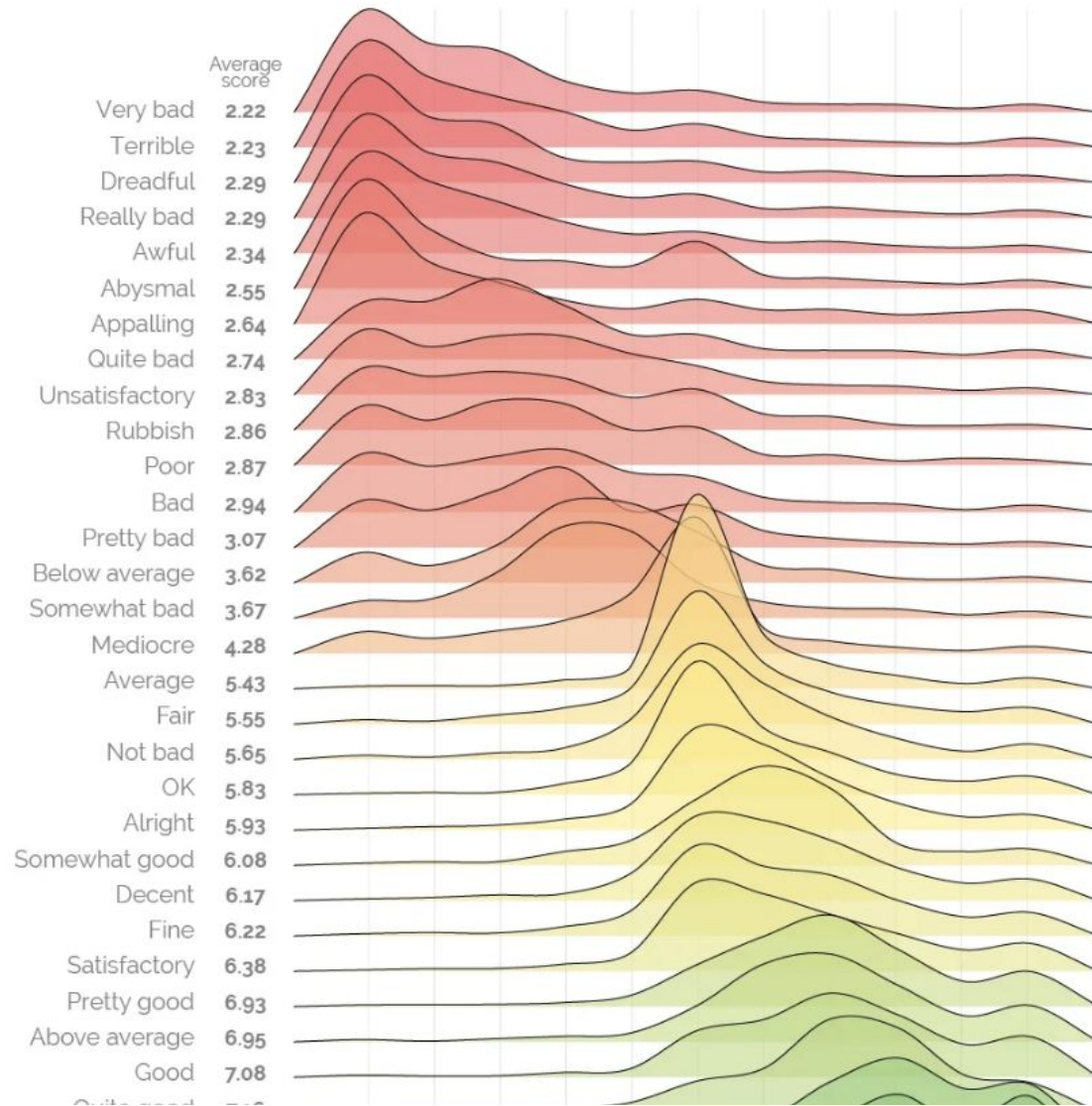


“This is Pretty Good”

How do we interpret this?

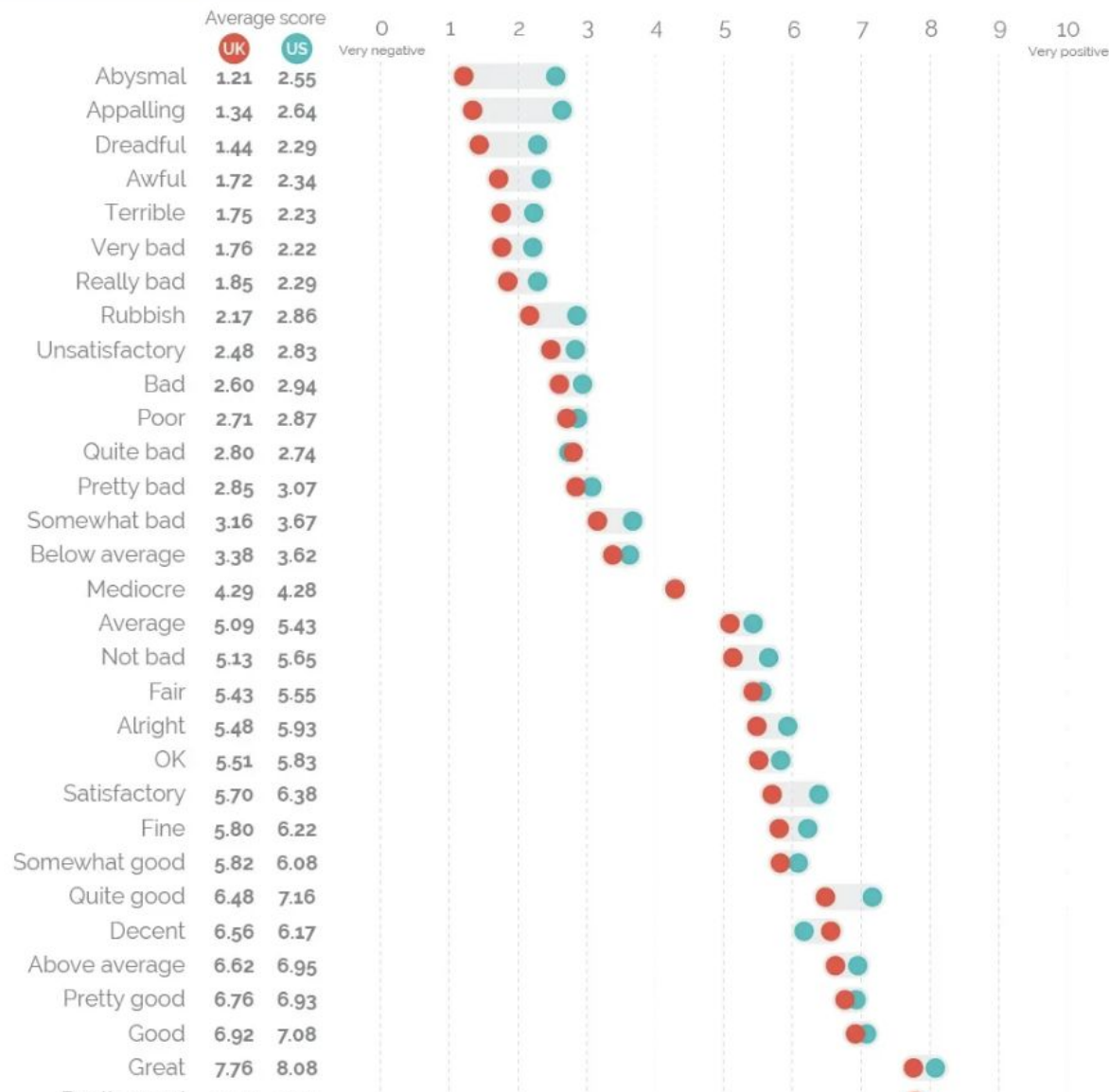
Make America 8.08 out of 10 again

On a scale of 0 to 10, where 0 is 'very negative' and 10 is 'very positive', in general, how positive or negative would the following word/phrase be to someone when you used it to describe something?

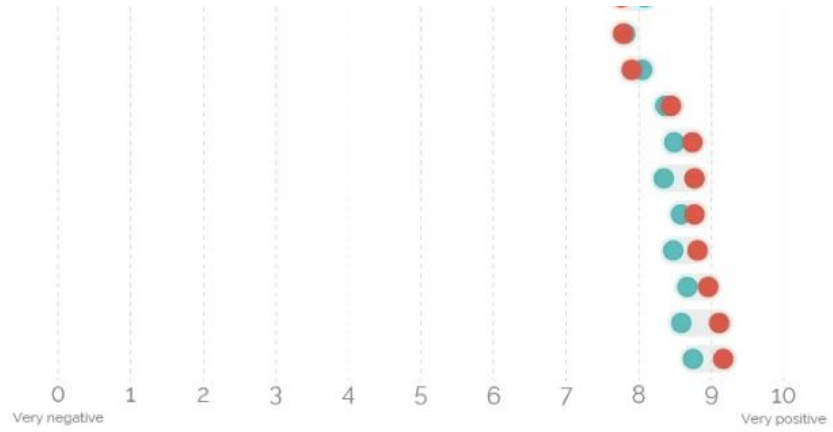


How good is "good"? US vs UK comparison

On a scale of 0 to 10, where 0 is 'very negative' and 10 is 'very positive', in general, how positive or negative would the following word/phrase be to someone when you used it to describe something?

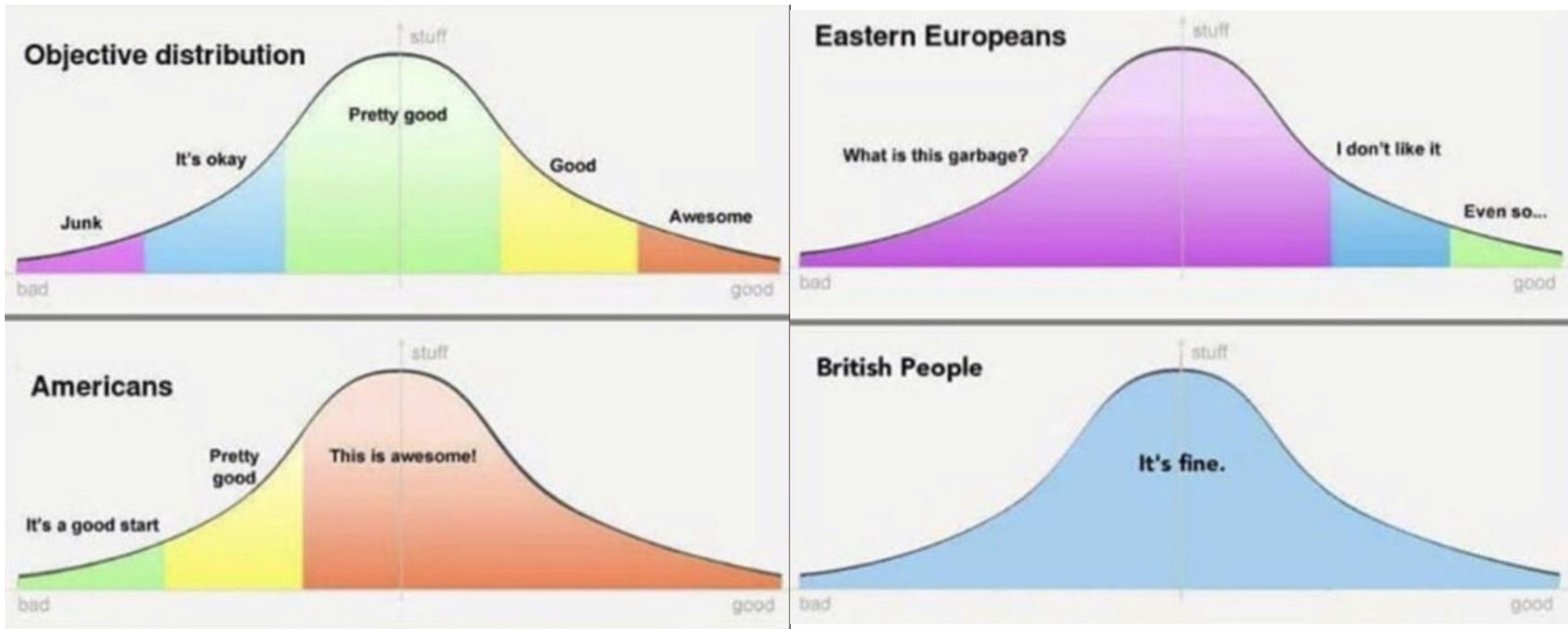


Really good	7.78	7.81
Very good	7.90	8.05
Awesome	8.44	8.36
Fantastic	8.74	8.49
Superb	8.77	8.35
Brilliant	8.77	8.58
Incredible	8.81	8.48
Excellent	8.95	8.67
Outstanding	9.11	8.59
Perfect	9.16	8.75



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August 14 - October 8, 2018



Case Study

Analysis and synthesis

Affinity Diagramming

Working with Qualitative Data

Affinity Diagramming for Examining Qualitative Data

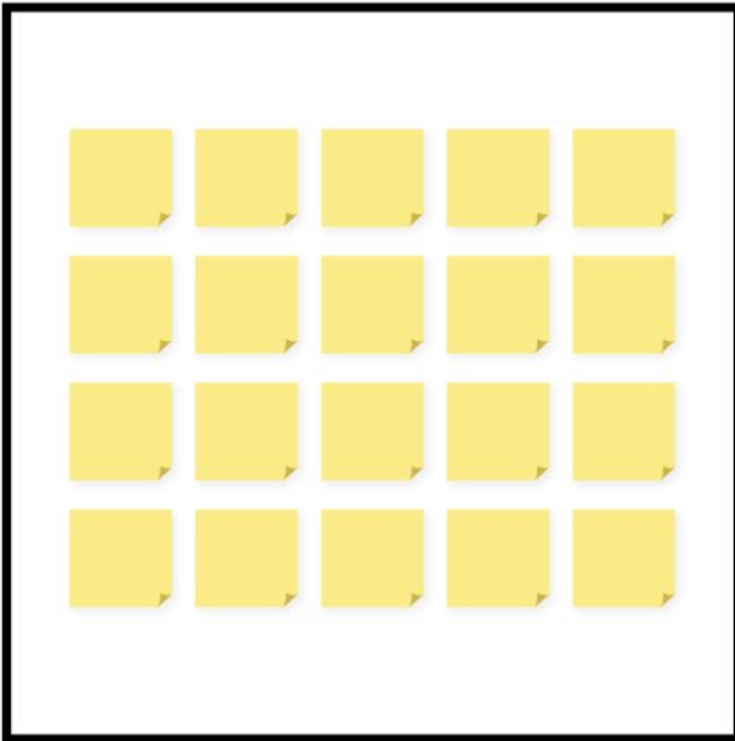
An **affinity diagram** is a collection of large amounts of data that is organised into groups or themes based on their relationships.

Affinity diagramming is a flexible mapping activity to quickly organize:

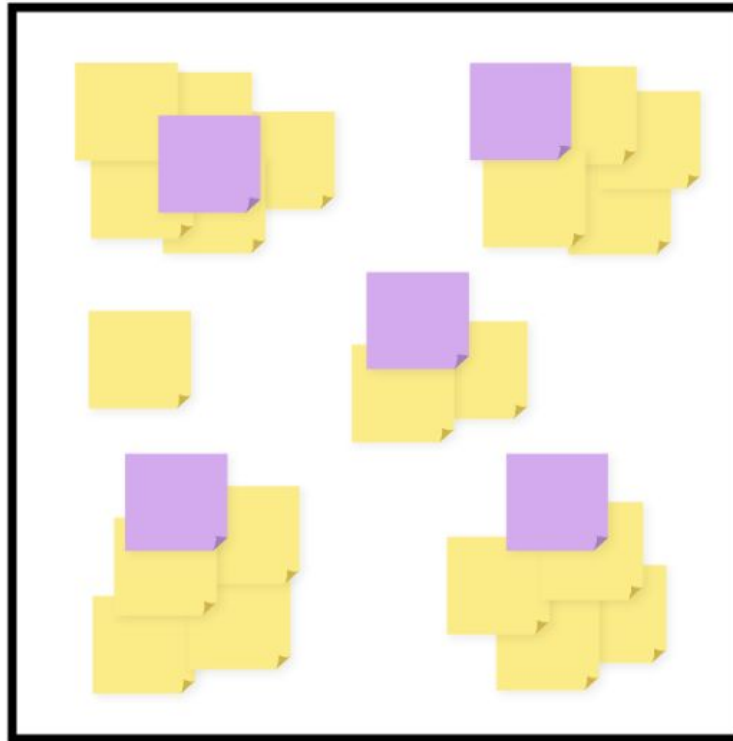
- ... observations or ideas from research
- ... concepts that surface in design-ideation sessions
- ... ideas about UX strategy and vision

Affinity Diagramming Process

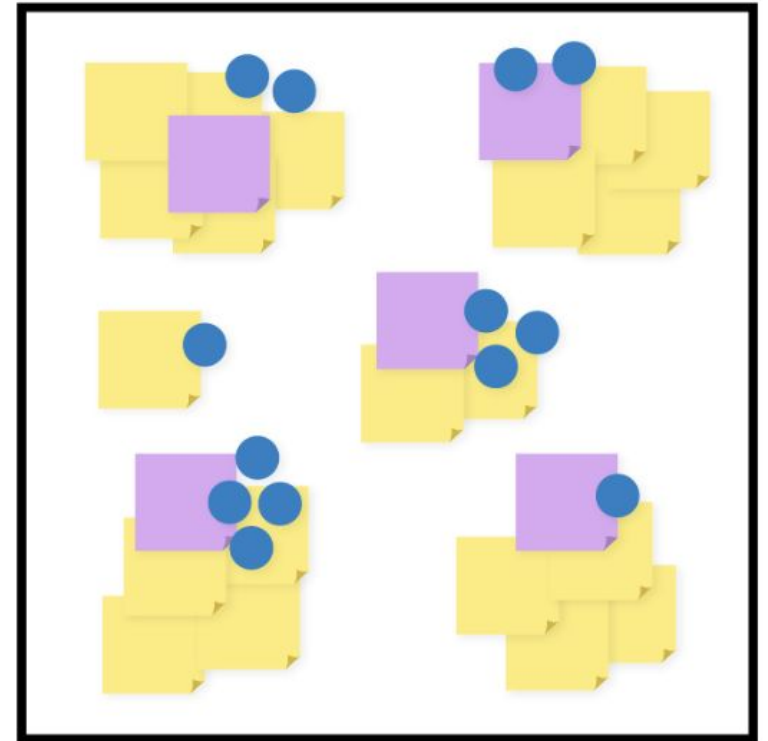
(1) Identify Affinity Items



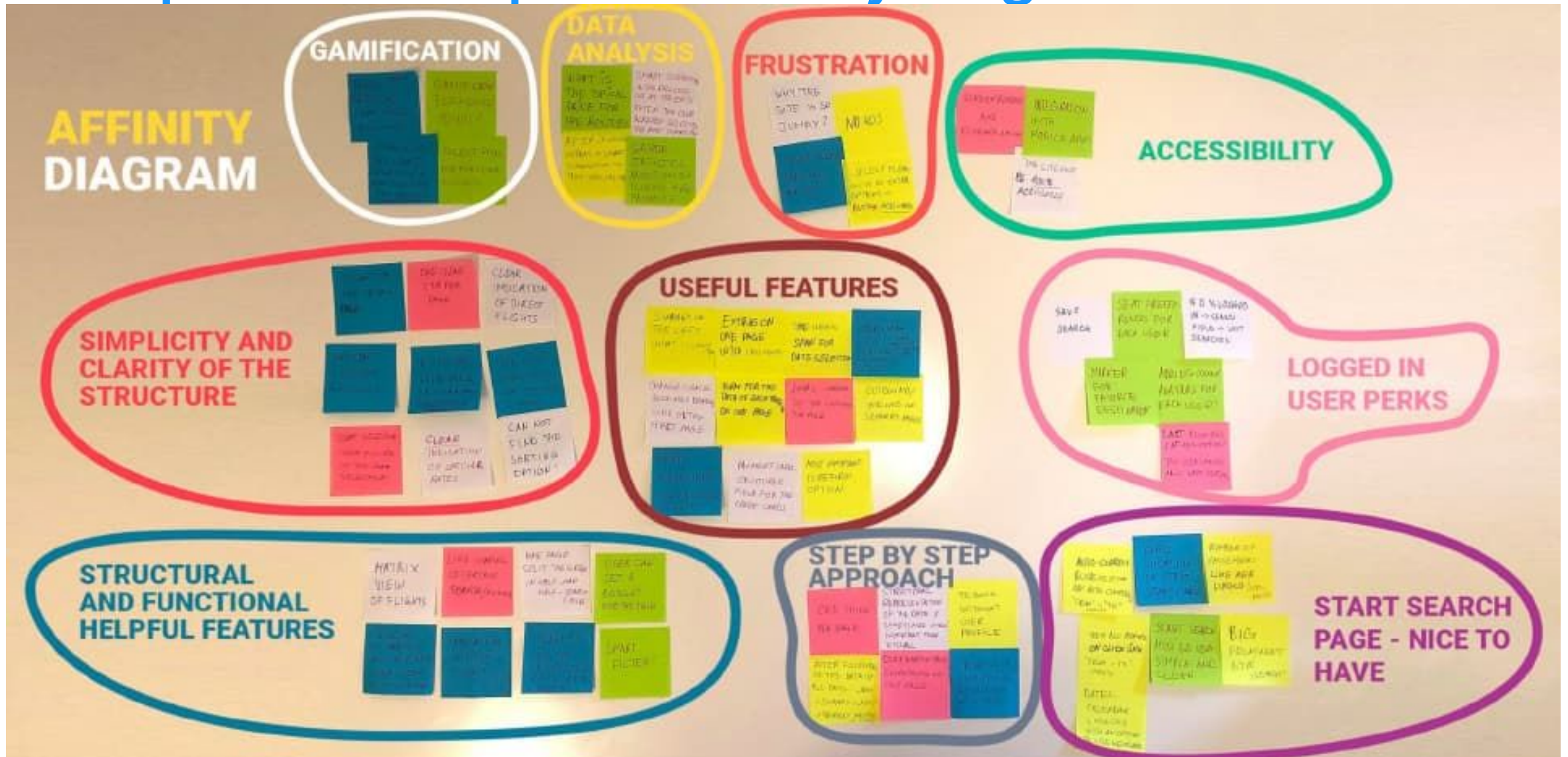
(2) Organize Items



(3) Group Items



Example of a Completed Affinity Diagram



Step 1: Identify Affinity Items (Quotes)

User ask:
Tutorials

Streamline lab
test result
access

Clearer
notification
system
needed

Faster loading
for results
pages

Integrate
educational
resources

User ask:
Ability to print

Design
consistency
across devices

Minimize
steps for
report
downloads

Enhance
patient
dashboard
design

Confusion:
Interpreting
test results

Implement
voice-
activated
features

Simplify lab
result
navigation

Design clearer
icons

Improve
accessibility

Highlight:
Positive
feedback
overall

Redesign
charts

Interactive
result filters

Provide
contextual
help

Errors:
Improve
messaging

Personalized
notifications

"I wish I knew
what these
test result
codes meant."

Step 1: Defining Affinity Items

Open-ended questionnaire/interview responses and observations generate a large amount of unstructured raw data (typically text)

Affinity item extraction is a process to create more structured data

... set of small independent data items that can be more easily analyzed (often called "affinity items" because data items often used for affinity mapping)

Each data item represented on a card (i.e. sticky note or digital equivalent)

... **code** to trace source (e.g. participant id, question num, video timecode)

... **statement** describing observation or interpretation (e.g. participant quote, description of what you observed or understood, etc.)

... only one idea or concept per card

... statement should be concise, concrete, and self-explanatory

Step 1: Data Extract + Affinity Items

Review your raw data in sequence

... if video/audio, it's useful to change speed and frequently pause

You can have more than one data item per open-ended answer

For interviews and observations, expect about 1 item per minute

... e.g. about 40 to 80 items for 1-hour interview

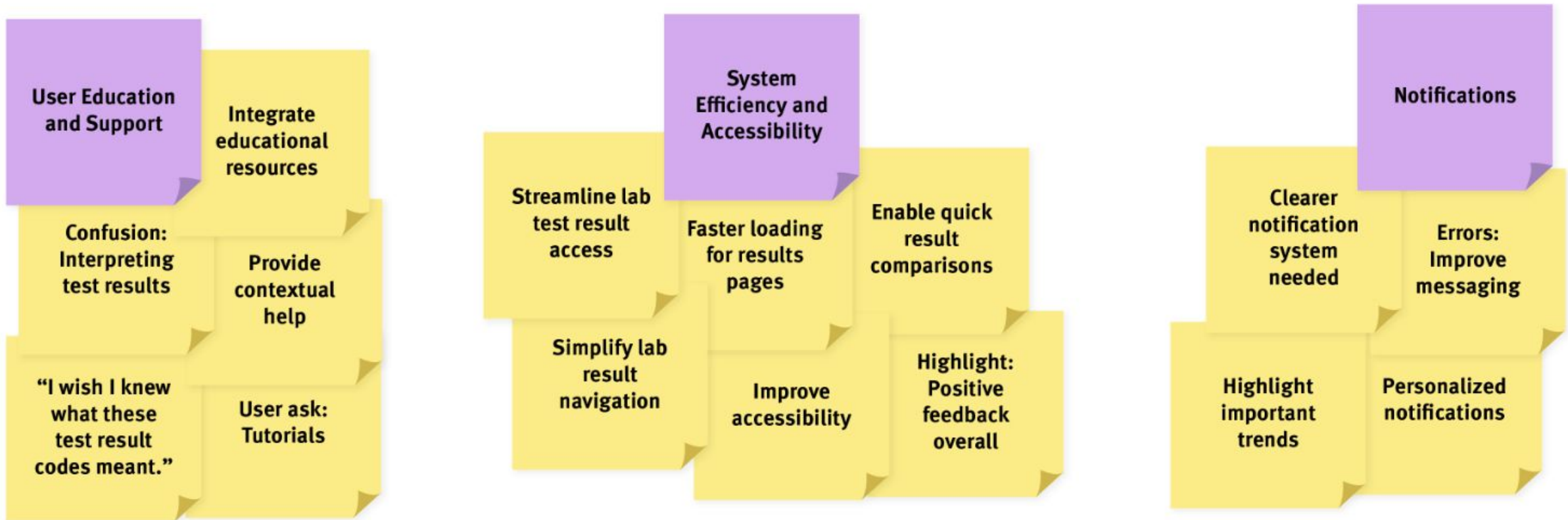
Items can also be questions you have about the data

Good quotes are those that are **unexpected** or **representative**

Look for different types of data items:

... e.g. something user says, something user does, inferred user need, other high-level comments or concerns, etc.

Step 2: Organize Affinity Items



Step 2: Color-coded Your Affinity Items

You can use colours to capture data item type, source, etc. For example:

Yellow for something the user says, e.g.:

... *“manual is basic, I won’t have to read it”*

Pink for something the user does, e.g.:

... *“first thing user tried was balancing on hoverboard”*

Blue for inferred user need, e.g.:

... *“using hoverboard should be easy”* (based on observation like *“I want to be able to go on the hoverboard without reading the manual”*)

Green higher-level comments or concerns, e.g.:

...*“packaging is great”* (based on user commenting about design of box)

Step 2 (alt): AEIOU Framework for Observations

Framework to structure all observations you make on the field during user research

... AEIOU is an easy to recall mnemonic for how to observe

... Useful for qualitative data extraction from raw data like video

A ctivities	What actions and behaviors are people taking to reach goals?
E nvironments	What is the overall setting in which the activities are taking place? How are people behaving in the environment?
I nteractions	What are the basic interactions for people to reach goals? What effect do people have on activities and environment?
O bjects	What are all the details that form the environment? How do objects relate to people, activities and interactions?
U ser	Who are the people being observed? What are their personalities like? How do they engage with other people to reach goals?

A**E****I****O****U**

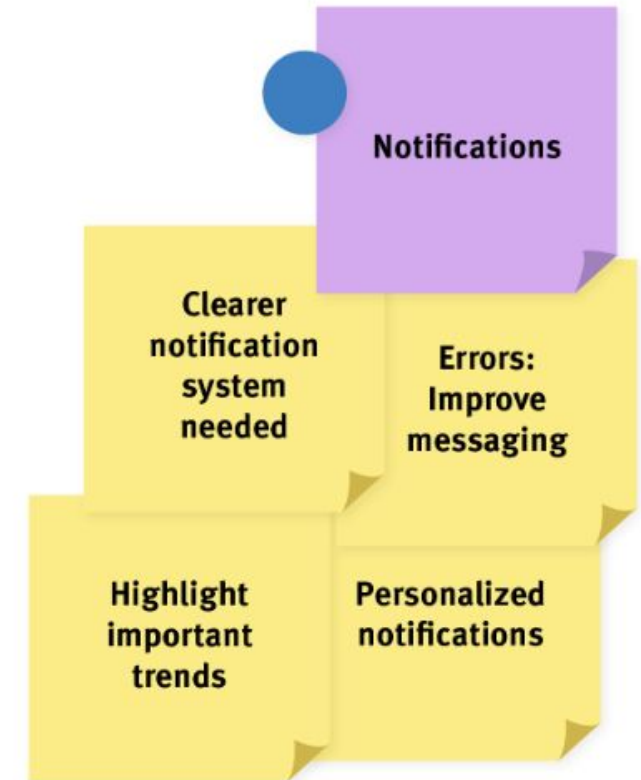
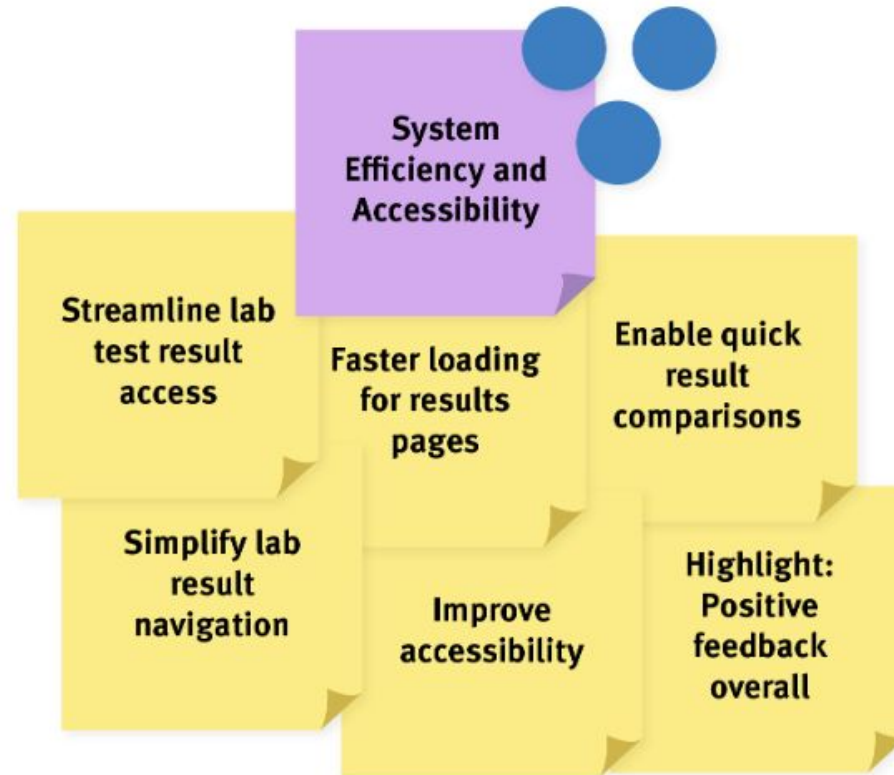
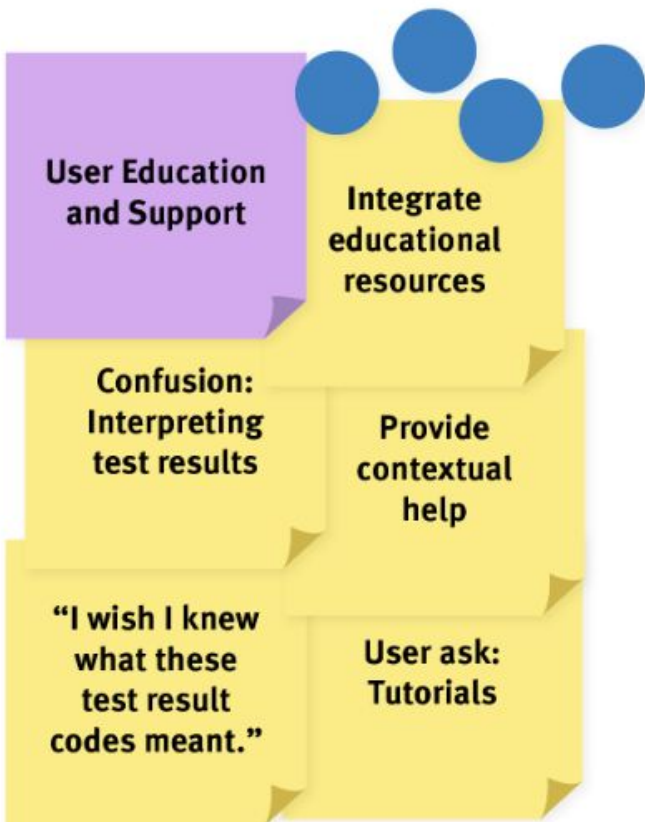
—ORDERING
FOOD

—EVENING
—OUTSIDE
—CROWDED
—STADIUM
LIGHTS

—CASHIER GIVES RECEIPT
TO WORKER
—WORKER PREPARES FOOD
—CASHIER CALLS OUT
ORDER #
—FOOD GETS TRANSFERRED
—CUSTOMER PAYS CASHIER
—PEOPLE TALK IN LINE

—MONEY

Step 3: Cluster + Prioritize Affinity Items



Affinity Diagrams

A collection of data items organized into groups or themes based on relationships.

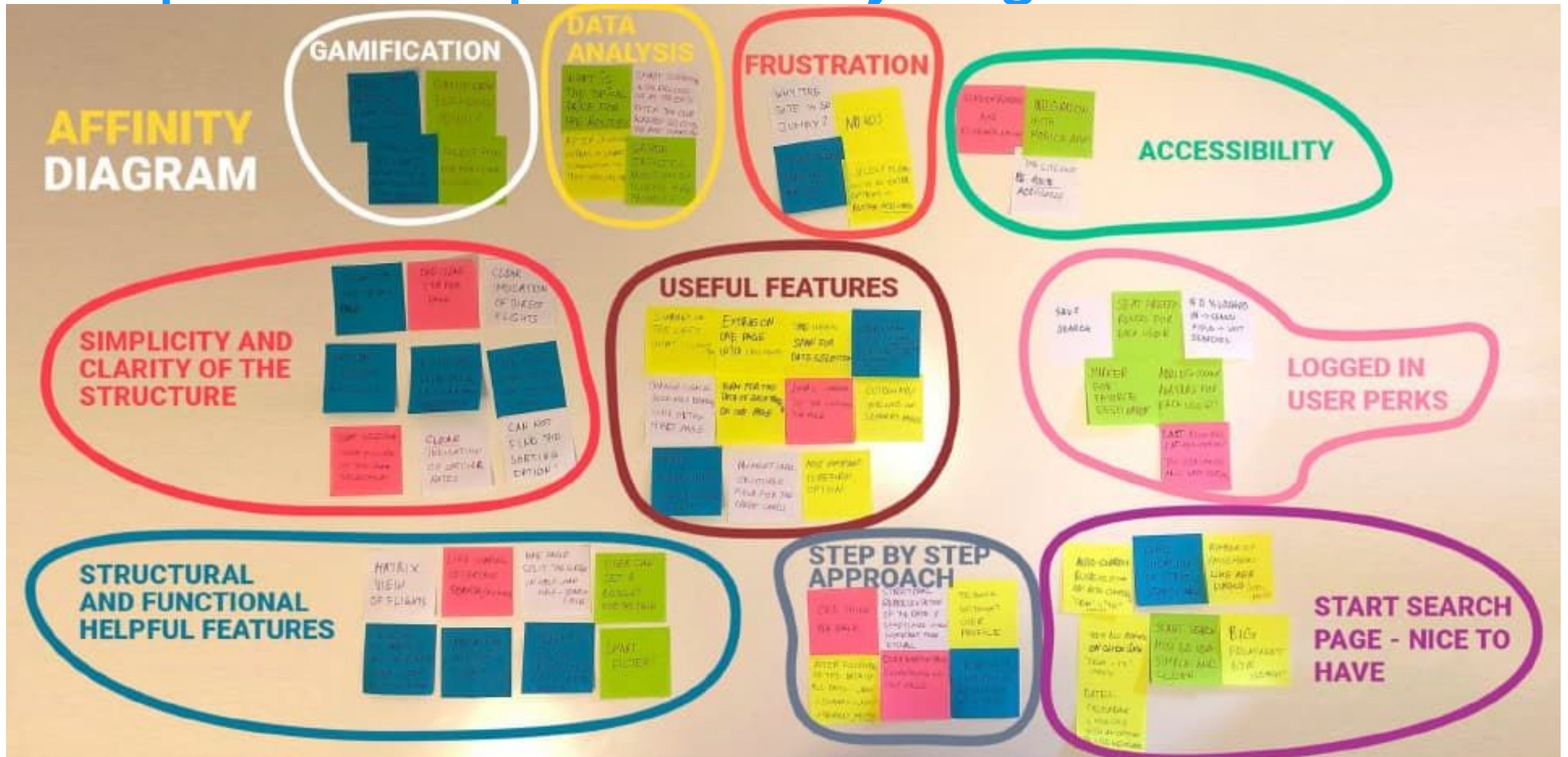
... The process to create an affinity diagram is typically "bottom-up": start from individual data items, look for relationships and form groups

... The groups are named to form concepts/themes, and often group relationships are identified, and groups and data prioritized

... The process is typically collaborative (done synchronously with team)



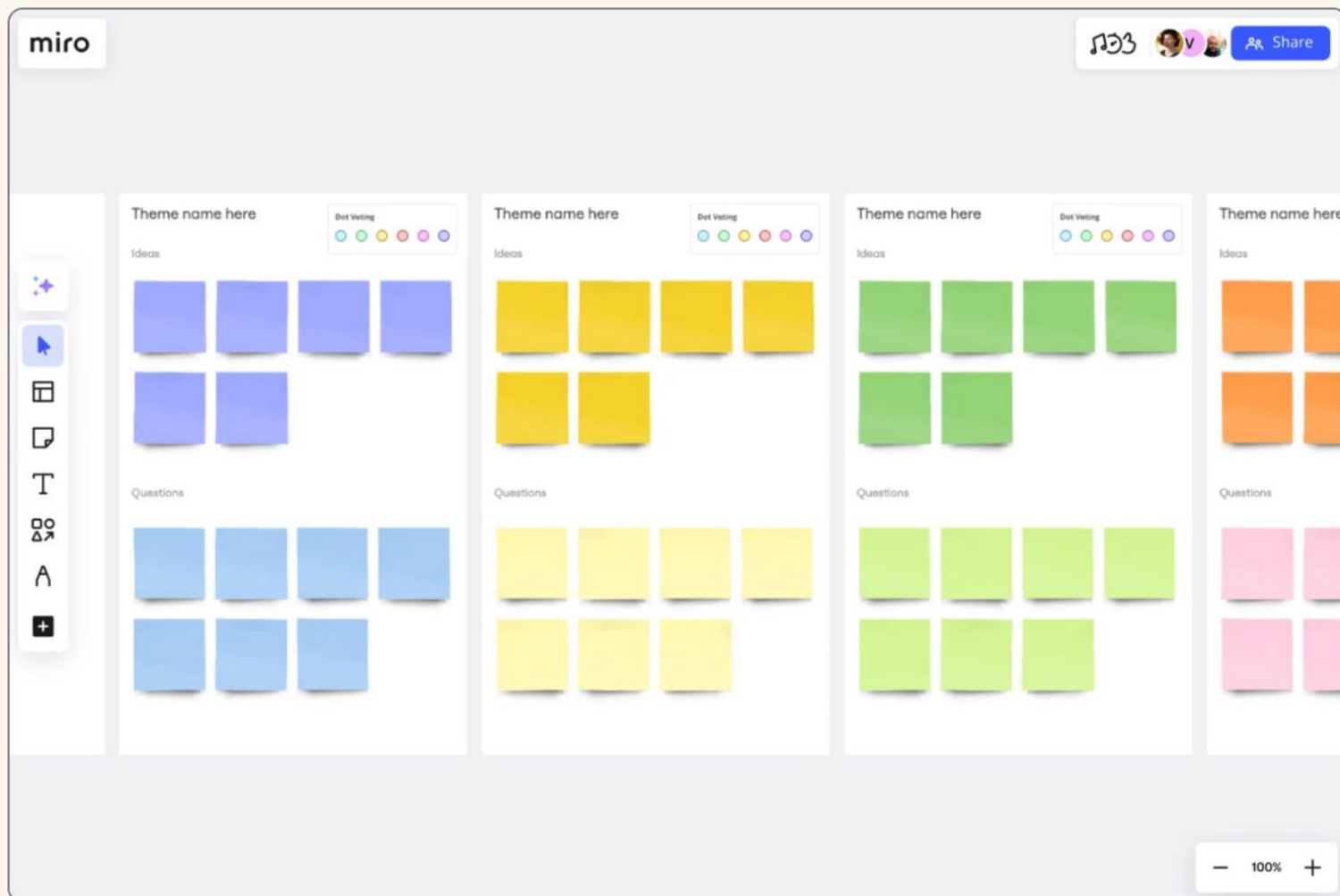
Example of a Completed Affinity Diagram



[← All templates](#)
[Categories](#)


Affinity Diagram Template

Develop solutions effectively by organizing ideas and data in one spot.

[Use template](#)


Affinity Diagramming Process: Part 1 Affinity Mapping

- 1. Write each piece a quote on a post-it note (or type into a draggable textbox)
- 2. Spread data items out on a wall or table (or in a shared digital drawing space)
- 3. Choose a random data item and make it the first item in the first group
- 4. Choose a random ungrouped data item, if none left go to step 6
- 5. If data item is "similar" to items in a group, add it to group and go to step 4
Otherwise, make the data item the first item in a new group and go to step 4
- 6. You have an initial set of affinity item groupings

Notes: ... "similar" is something that evolves during the process and your team decides ... feel free to change groupings at any point... and it's ok to have some single item groups

Affinity Diagramming Process: Part 2 Cluster Revisions

Review each grouping of data as a team

- ... is a cluster controversial (too big, too small, too "similar" with another group)?
- ... are data items in a group controversial (better match in another group, etc.)
- ... Re-organize groups or data items as needed
- ... 3 -5 groups is a rule of thumb ideal

To synthesize results, give each group a short name that captures the meaning of the data items it represents

Ways to further synthesize data relationships:

- ... Use lines to connect related groups
- ... Circle multiple groups to create super groups and/or hierarchies
- ... Ask team members to vote or prioritize groups and/or individual ideas



Affinity Lens

Data-Assisted Affinity Diagramming with Augmented Reality

Hariharan Subramonyam

University of Michigan
Ann Arbor, MI
harihars@umich.edu

Steven M. Drucker

Microsoft Research
Redmond, WA
sdrucker@microsoft.com

Eytan Adar

University of Michigan
Ann Arbor, MI
eadar@umich.edu

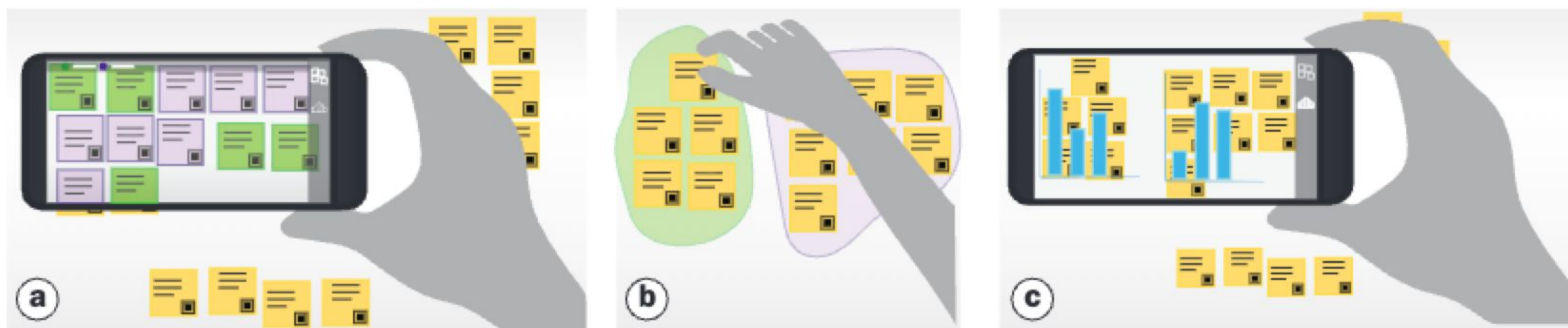


Figure 1: Affinity Lens used to split a larger affinity cluster based on income level. (a) The user applies a heatmap lens to an existing cluster which shows two sub-groups. (b) The designer regroups the notes. (c) A histogram lens compares sleeping schedules for the two sub-clusters found in (a).

Case Study

Affinity Diagramming (in Miro)

Week 4 Studio P4

Preparing for Informative Interviews PO1a

Week 4 Studio Activities

Exploring your existing interviews with 449 / 649 classmates
... What worked? What didn't work? How should you update your interview questions

Develop a baseline affinity diagram from your initial interviews
... Set-up a process to organize your data
... Start to create an affinity diagram

Update Your Affinity Diagram after every PO1a Interview

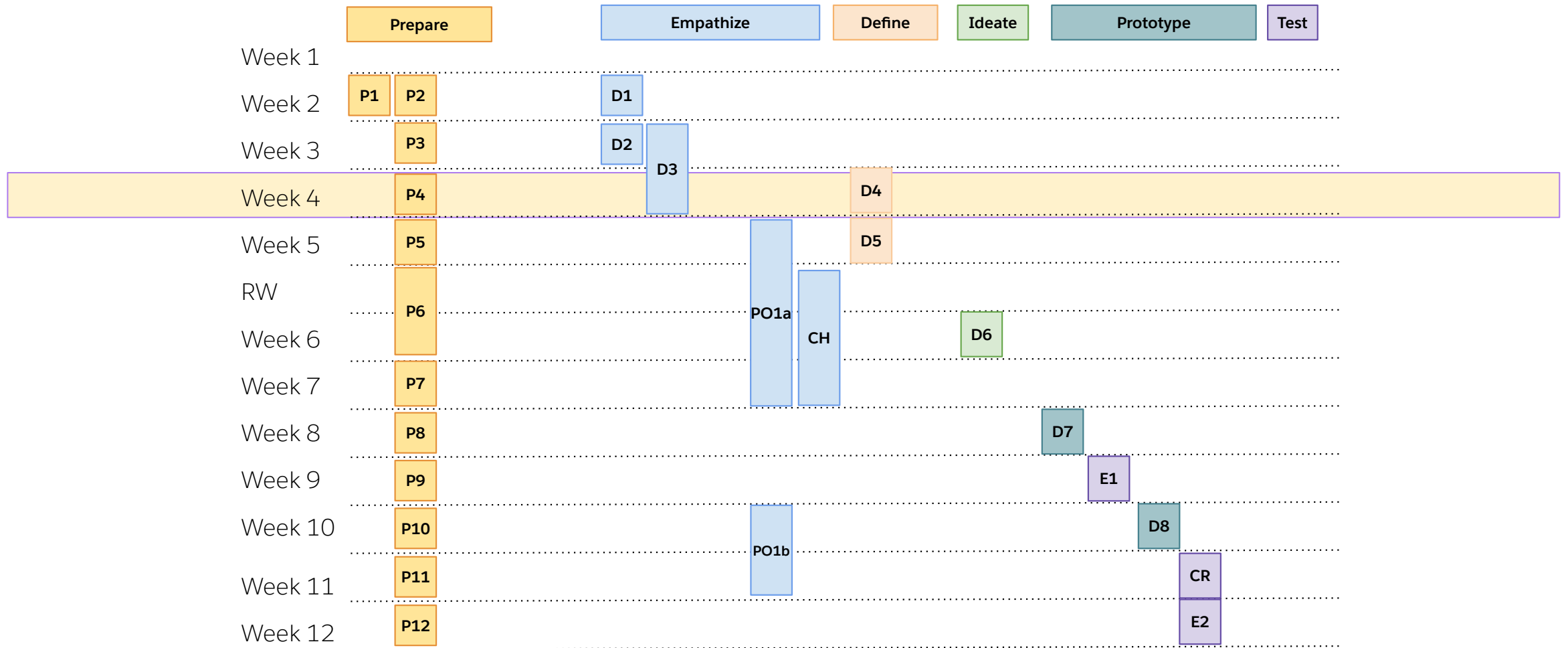
Based on all the findings each week, create (or update) a consolidated affinity diagram.

If the CS 449 / 649 students that you pilot interviewed between Week 3 and Week 4 were representing themselves (i.e., not pretending to be a persona), then you can also include those as findings.

Include a screenshot of the affinity diagram in the design notebook.

Leverage the consolidated affinity diagram to revise your interview questions (if needed).

Project Deliverables Build on Each Other



Week 4 Studio P4 (Part 1 of 2)

Schedule first 1-2 interviews for the week between the Week 4 and Week 5 studios.

Week 4 Studio P4 (Part 1 of 2)

Reflecting on the personas that you developed in **D2**, identify a target group of individuals (outside of CS 449) to interview for your project.

In PO1a, you will conduct informational interviews with these participants.

Schedule the first 1-2 interviews for the week between the Week 4 and Week 5 studios.

Week 4 Studio P4 (Part 2 of 2)

Conduct mock ("pilot") interviews with two 449 / 649 classmates

Week 4 Studio P4 (Part 2 of 2)

Conduct mock ("pilot") interviews with the two 449 / 649 classmates (outside your team) that you recruited as part of **P3**:

Write up what you learned:

- ... Which questions seemed confusing to your interviewees?
- ... Which questions were best at drawing out the most interesting information?
- ... What questions did you realize that you were missing?
- ... What recommendations did your interviewees give you on how your interview questions and procedures can be improved?

Week 4 Studio P4 (Part 2 of 2, continued)

Anonymize notes (i.e., DO NOT write down the interviewees' names in the design notebook. Instead use participant IDs, e.g., P1, P2, etc).

Based on these lessons learned, document your new / refined set of interview questions in the design notebook.