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Keio University
Global Innovator Acceleration Program
2015
Day 2 Workshop

Graduate School of System Design and Management
EDGE Program Team

Workshop: Plan

- Brainstorming practice
- Observation
- Ideation
- Prototyping and Testing

Design Thinking in Action: Brainstorming

It's Human-Centered.

常に人間を意識しながら考える

It's Collaborative.

多様性を活かすことによる恩恵

It's Optimistic.

必ず答えはあると信じる

It's Experimental.

早く、たくさん失敗してその経験から急速に学ぶ

Why collaborate?

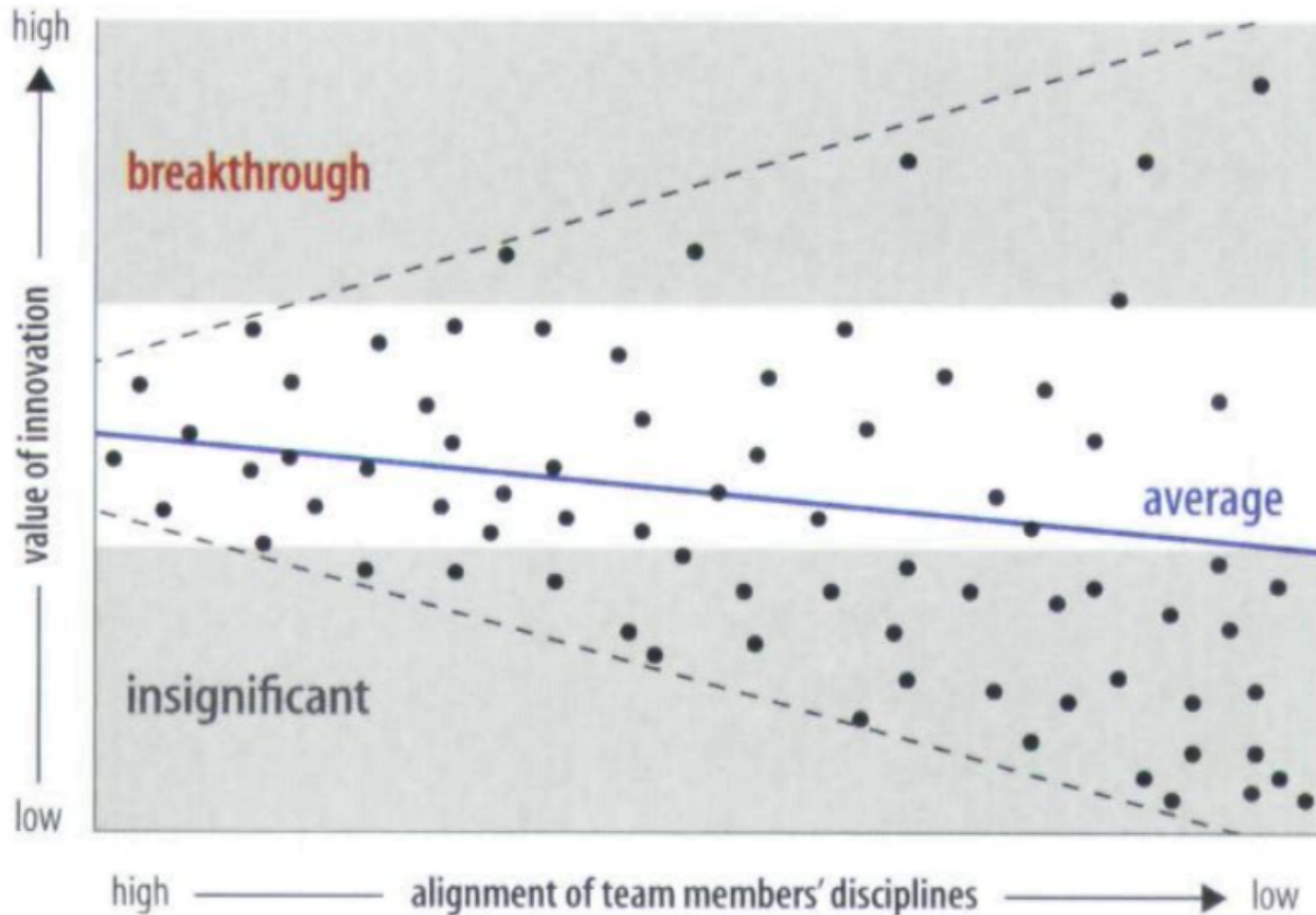
Evidence for a Collective Intelligence Factor in the Performance of Human Groups

Anita Williams Woolley,^{1*} Christopher F. Chabris,^{2,3} Alex Pentland,^{3,4}
Nada Hashmi,^{3,5} Thomas W. Malone^{3,5}

Psychologists have repeatedly shown that a single statistical factor—often called “general intelligence”—emerges from the correlations among people’s performance on a wide variety of cognitive tasks. But no one has systematically examined whether a similar kind of “collective intelligence” exists for groups of people. In two studies with 699 people, working in groups of two to five, we find converging evidence of a general collective intelligence factor that explains a group’s performance on a wide variety of tasks. This “c factor” is not strongly correlated with the average or maximum individual intelligence of group members but is correlated with the average social sensitivity of group members, the equality in distribution of conversational turn-taking, and the proportion of females in the group.

Woolley, Anita W. and others . "Evidence for a Collective Intelligence Factor in the Performance of Human Groups." *Science* 330, no. 6004 (2010): 686-688.

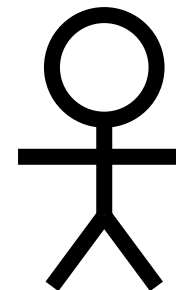
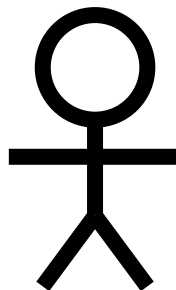
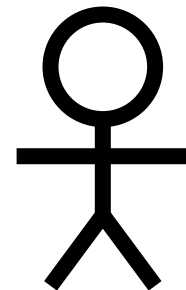
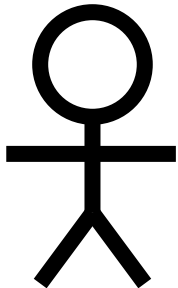
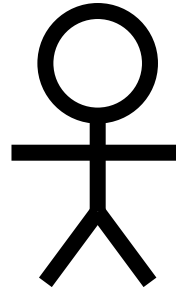
Why collaborate interdisciplinary?



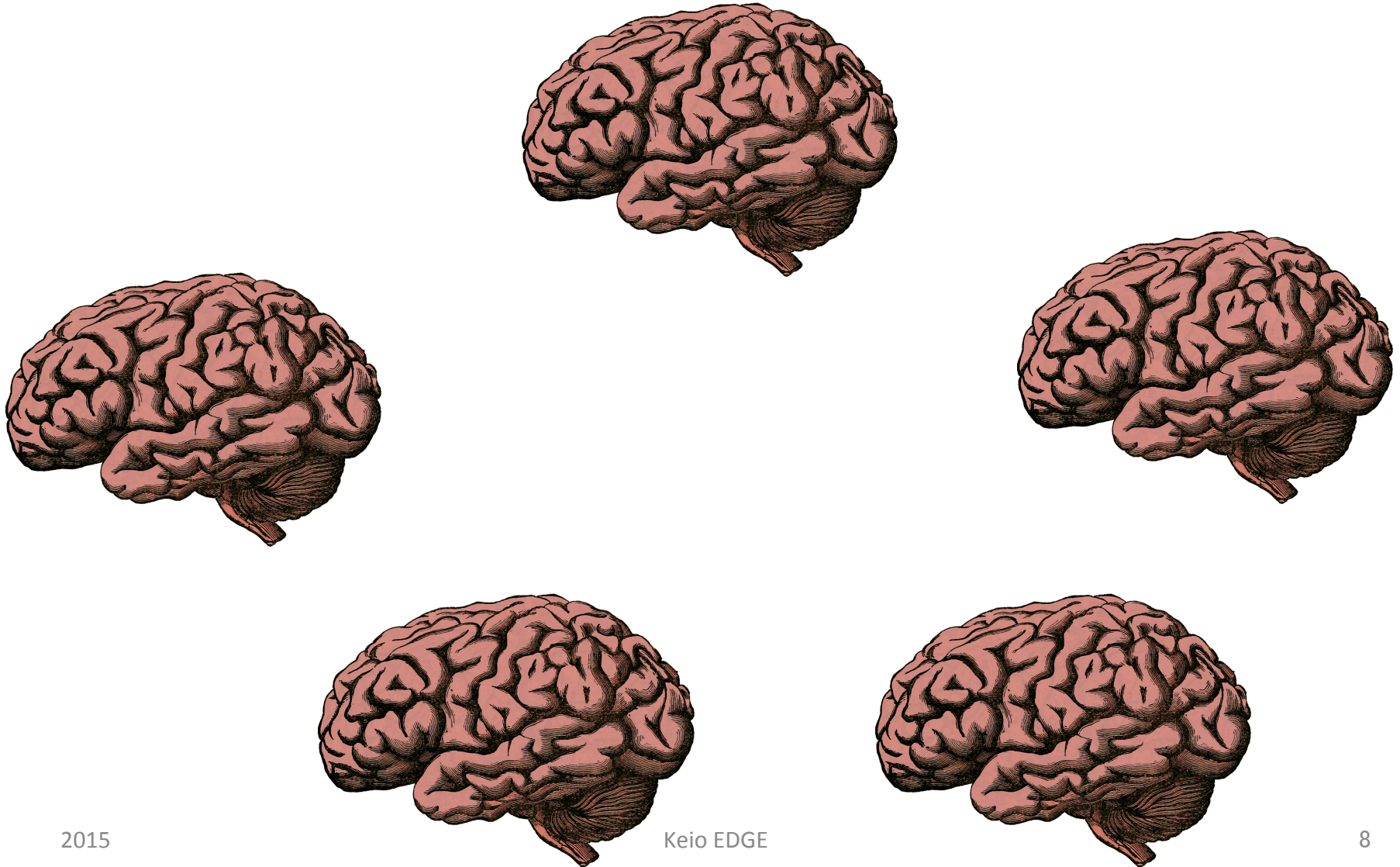
Brainstorming

- A kind of **Free Association** Measure
 - It means it is encouraged to *build on the ideas of others*.
 - You should *write (or draw) clearly* and *be vocal* every time you place your sticky note so that *others have more chance to build on your ideas*.
- Go for *quantity*!
 - It is not sniper rifling the best solution but more like shooting a shot gun.
 - Brainstorming mode:
 - *welcome wild/crazy ideas!*
 - *give every post-it note a short positive feedback!*

Brainstorming as a **Free Association** Measure

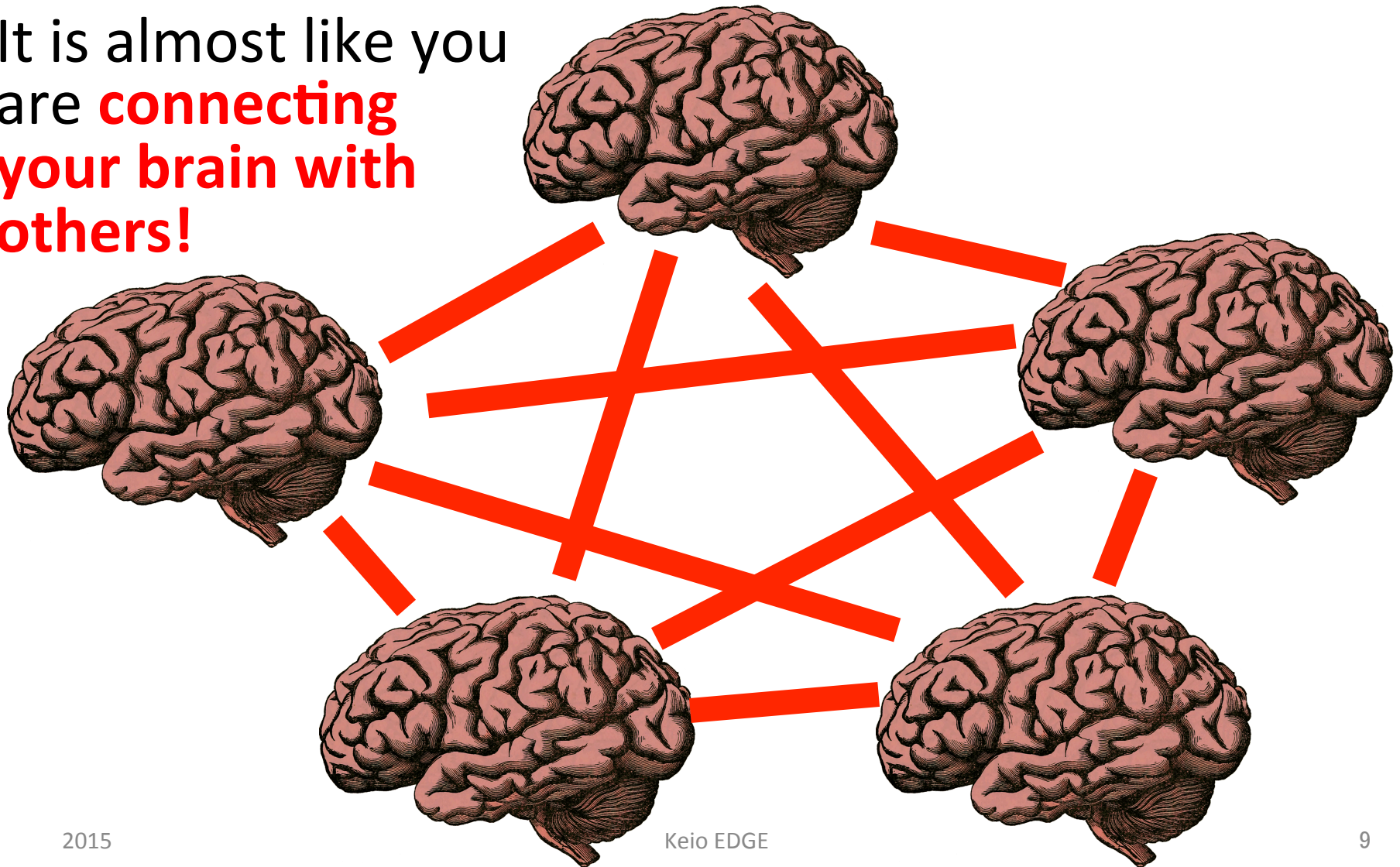


Brainstorming as a **Free Association** Measure



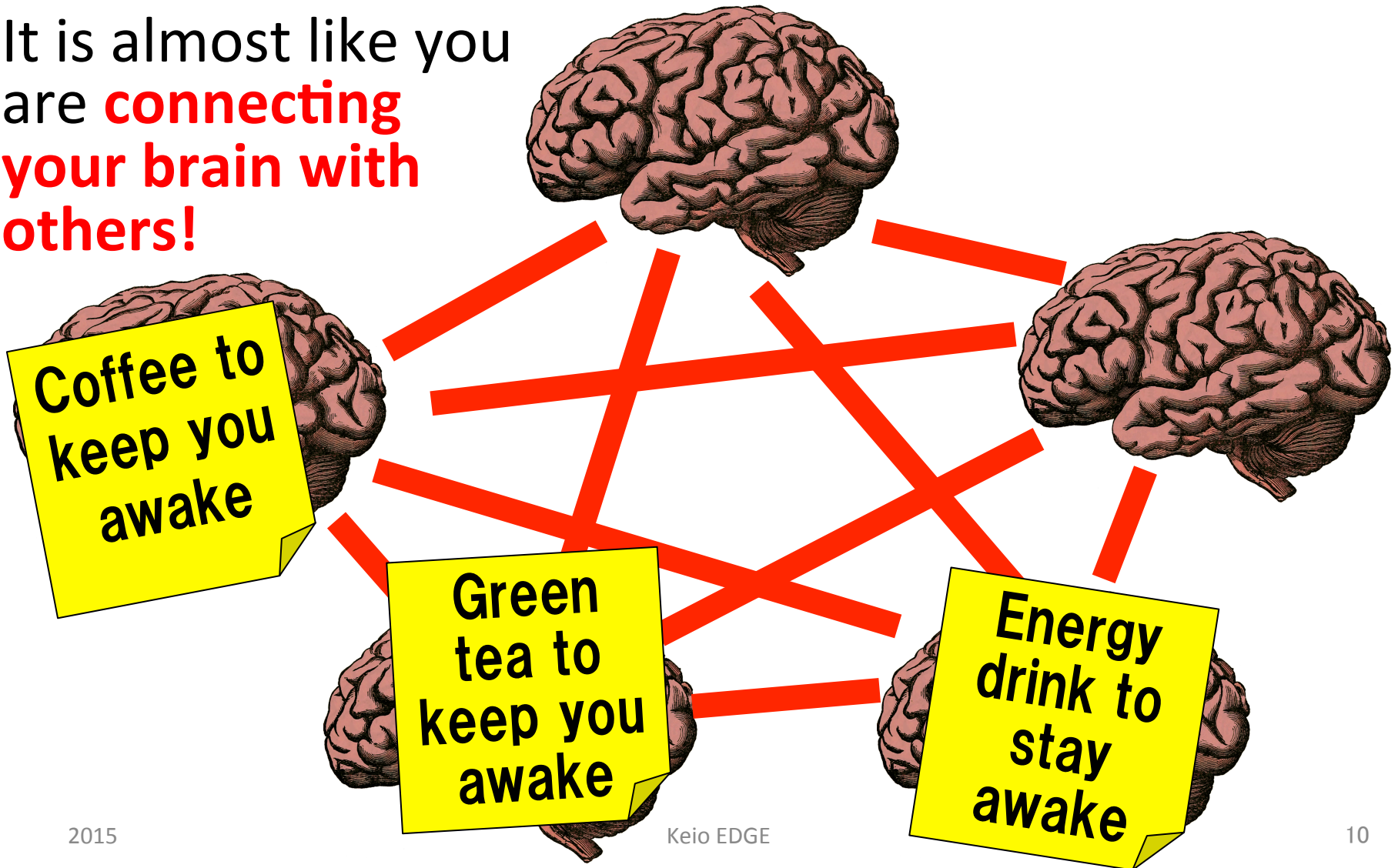
Brainstorming as a **Free Association** Measure

It is almost like you
are **connecting**
your brain with
others!



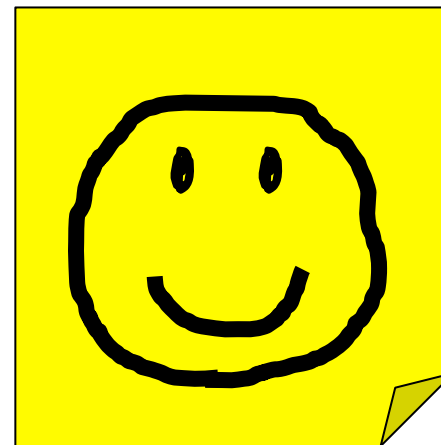
Brainstorming as a **Free Association** Measure

It is almost like you
are **connecting**
your brain with
others!



Brainstorming as a **Free Association** Measure

Increase the chance to build on the ideas.



You can
draw, too!

Verbally share your idea every time you put it down
on a sticky note!



Go for **quantity!**

- **Build on** other ideas
- **Encourage** wild ideas
- **Defer judgment** and do NOT block the others

Go for **quantity!**

Brainstorming mode:

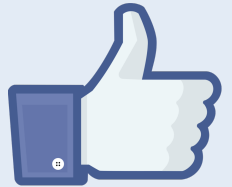
welcome wild/crazy ideas!

give every post-it note a short positive feedback!

XYZ!

Nice!

**That's
cool!**



Brainstorming



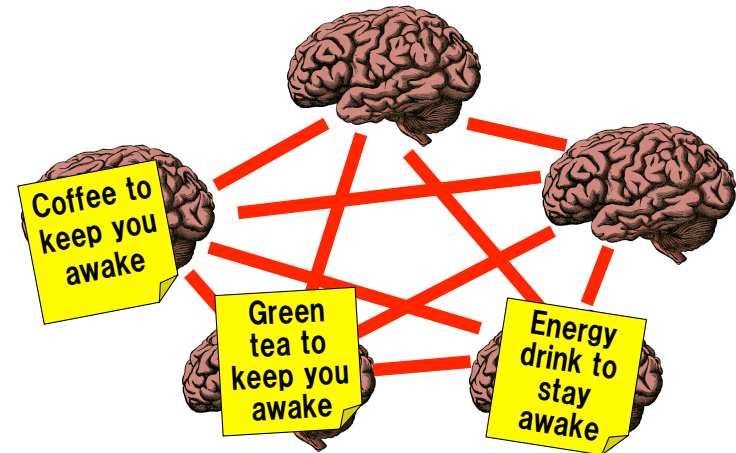
Go for quantity!



Easy to understand!



Brainstorming mode!



Build on the ideas!

Strategic Brainstorming Tips

- **Clarify** what you are brainstorming.
 - Solution? Definition? Recognition? ...
 - You can brainstorm many different things
- Ask the **question that is suitable for brainstorming**.
 - Questions that diversity might help to answer
 - Questions that are interesting to expand the solution space
 - Questions that logical or critical thinking would not provide an innovative solution
 - “How might we” questions
 - “Ill defined” questions
 - ...
- Stay in **innovative thinking mode**
 - You do NOT want bunch of “in the box” sticky notes
 - You also do NOT want ordinary “Sci-Fi* movie stuff” sticky notes (*Science Fiction)

Brainstorming

How might we
communicate face-to-face
without a common language?



Go for quantity!

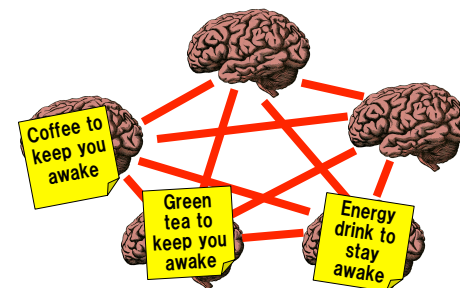


Easy to understand!



Keio EDGE

Brainstorming mode!



Build on the ideas!

Example

Brainstorming

- How might we communicate face-to-face without a common language?

hand
gestures

body
gestures

facial
expressions

dance moves

leg/feet
gestures

mimicking
animal
motions and
sounds

mimicking
insect
motions and
sounds

drawing
pictures

drawing
diagrams

Workshop: Context

Healthcare

- **You are a team thinking about launching a start-up business in healthcare domain.**
- Your scope is global and have not decided what to focus on.
- **You are in the phase of developing your concept.**
- You can give original definition to “healthcare”.

Design Thinking in Action: Observation

It's Human-Centered.

常に人間を意識しながら考える

It's Collaborative.

多様性を活かすことによる恩恵

It's Optimistic.

必ず答えはあると信じる

It's Experimental.

早く、たくさん失敗してその経験から急速に学ぶ



Imagine this is sitting in front of you.

Describe what you observe.

目の前にこれがあると
思って見てください。
観察したことについて述
べてください。

Fact and Opinion/事実と解釈

事実/Fact

客観的方法で確認可能な記述。

A **fact** is a statement that can be proven by direct experience or objective verification.

解釈/Opinion

客観的方法で検証が出来ない話し手の信条や判断による記述。

An **opinion** is a statement of belief or judgment that cannot be objectively proven true or false.

(Reference) <http://www.montgomerycollege.edu/~steuben/factopinion.htm>

Observation: Fieldwork Note

Fact

Opinion

Observation for Human-Centered Insights

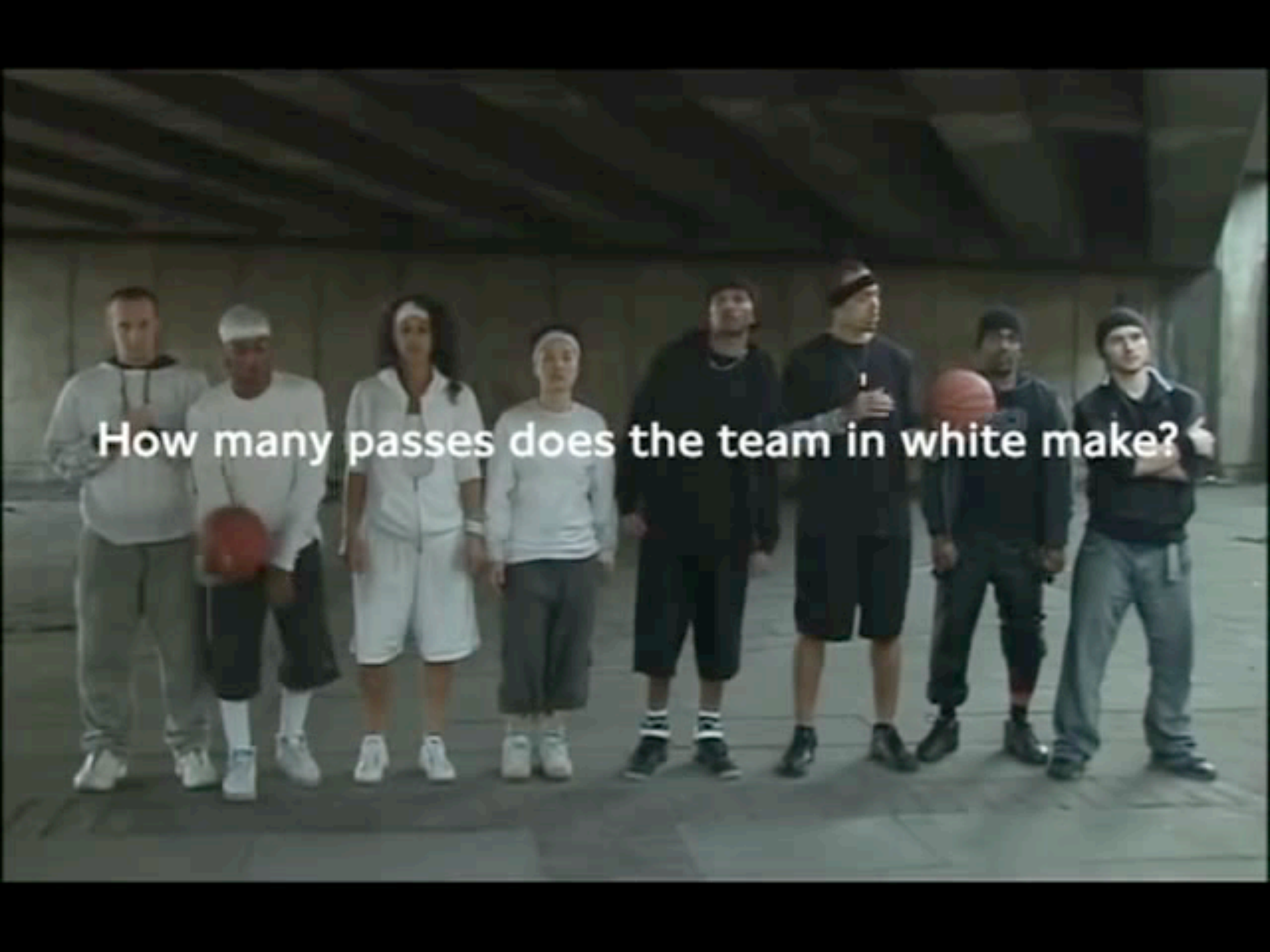
[Instructions]

- Go out and ***conduct observation*** as a team.
- Take fieldwork notes in ***fact-opinion format***.
- Come back and review and discuss the notes.
- ***Find insights*** that may lead you to new value creation in the “healthcare” domain.

60min + (60min lunch) + 60min unpacking

Observation: Fieldwork note review and discussion

Fact	Opinion	Insight



How many passes does the team in white make?

Instructions

Count how many times the players wearing white pass the basketball.

Observation Tips

- Unless you are careful *you are seeing things you want to see.*
- Even though you are careful *you may still be seeing things you want to see.*
- Hypothesis or bias may *haunt* you.
 - It is okay to have them but **be ready to update them** while you are observing.
- Having different viewpoints may *help* you.
 - Sometimes it is helpful if you **intentionally set some different viewpoints** for the observation.

Observation for Human-Centered Insights

[Instructions]

- Go out and ***conduct observation*** as a team.
- Take fieldwork notes in ***fact-opinion format***.
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Design Thinking in Action: Ideation

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必ず答えはあると信じる

It's Experimental.

早く、たくさん失敗してその経験から急速に学ぶ

Ideation Tactics

- You need to define the “context”.
- You need to define the problem.
- **Intentionally** think outside the box!
 - Need to know what defines the box.
 - Need to know what is inside the box.
- **NOT about finding an idea but expanding your idea options further.**

Ideation Methods

- **Free** Association Measure
自由連想法
- **Forced** Association Measure
強制連想法

Ideation Methods

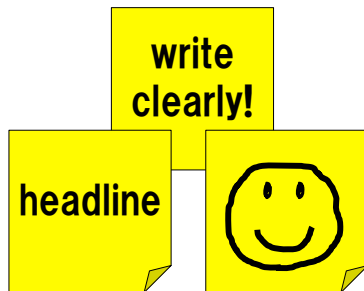
- **Free** Association Measure
自由連想法
 - Brainstorming, ...
- **Forced** Association Measure
強制連想法
 - Osborn's Checklist, Matrix Measure, ...

Brainstorming

How might we
communicate face-to-face
without a common language?



2015
Go for quantity!

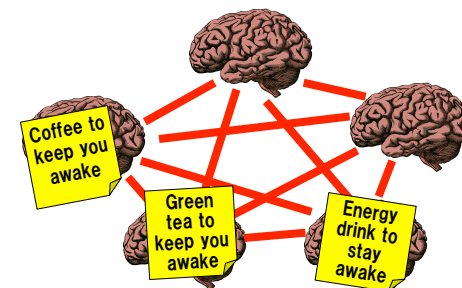


Easy to understand!



Keio EDGE

Brainstorming mode!



Build on the ideas!

Example

Brainstorming

- How might we communicate face-to-face without a common language?

hand
gestures

body
gestures

facial
expressions

dance moves

leg/feet
gestures

mimicking
animal
motions and
sounds

mimicking
insect
motions and
sounds

drawing
pictures

drawing
diagrams

Strategic Brainstorming Tips

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Brainstorming

あなたが
思わず、ついつい
触っちゃった、手が出ちゃった
時に「**口にしてそうな一言**」って？



2015
Go for quantity!

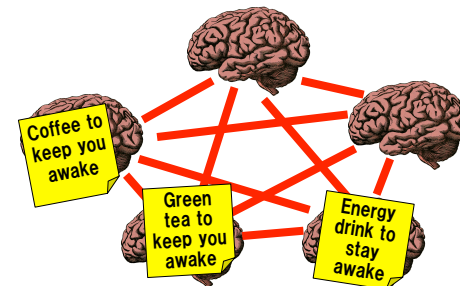


Easy to understand!



Keio EDGE

Brainstorming mode!



36
Build on the ideas!

Brainstorming

「あなたが思わず、ついつい触っちゃった、手が出ちゃった時に『口にしてそうな一言』って？」

ふっかふ
か！

うわ、つ
めた～い

ああ、意
外とそう
でもない

お、生き
てる！

なんだ、
良かった
あ

○○××

戦略的なブレーンストーミングの設問

- ブレーンストーミングの結果から「何を得たいか」を考えて設問すると良い。
 - 1つの素晴らしい**アイデアを見つける為の設問**
 - 複数の人間の多様な視点、価値観、認識からの**発想群を可視化する為の設問**
 - 問題認識の整合
 - 解空間の認識
 - など
- **多様性を多様なまま取り出せる設問**を考える事が重要。
- 参加した人が**自由な連想をし易い設問**を考える事が重要。
- 目的や状況に合わせて**適切に設問を考える**事が必須。

Exercise

Brainstorming Exercise 1

- Discuss and write down clearly what you are brainstorming.
- Conduct the brainstorming.
- Did you expand the solution space?
- How can you change your brainstorming question to improve the *divergent thinking* process?

Example

• How might we communicate face-to-face without a common language?

hand gestures

body gestures

facial expressions

dance moves

leg/feet gestures

mimicking animal

mimicking insect

drawing pictures

drawing diagrams

*Note

It is a good habit to clearly state your brainstorming question.

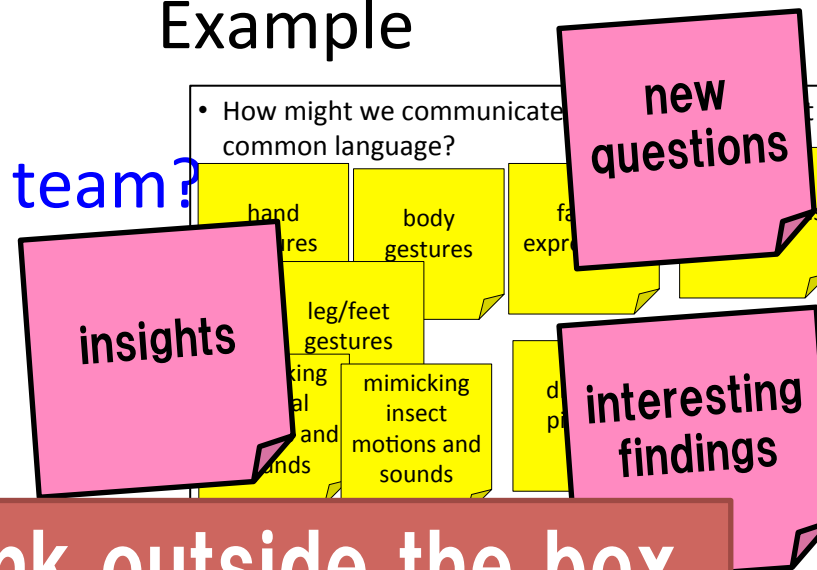
Spend some time to think what is the right question to ask to expand your solution space

Exercise

Brainstorming Exercise 2

- Discuss about your brainstorming session. Both process and output.
 - Jot down **interesting finding** and **new questions found** during the discussion. They may be important insights.
- Why did you have to change brainstorming question? What does it implicate?
 - Any bias or trend in output?
 - Any unnoticed assumption of the team?
 - Possibility of new perspective?
 - Any out of the box idea?

Example



Looking for insights to think outside the box

Brainstorming Exercise 1

- テーマと課題について議論しながら、**ブレインストーミングの設問を考えて下さい。**
- 考えた設問でブレインストーミングを**実施**。
 - 思考は**発散**したか？
 - どの様な設問であれば**多様性を活かし、より効果的な発散**が出来るか？

【例】

「あなたが思わず、ついつい触っちゃった、手が出ちゃった時に『口にしてそうな一言』って？」

ふっかふか！

うわ、つめた〜い

ああ、意外とそうでもない

お、生きてる！

なんだ、良かったあ

〇〇××

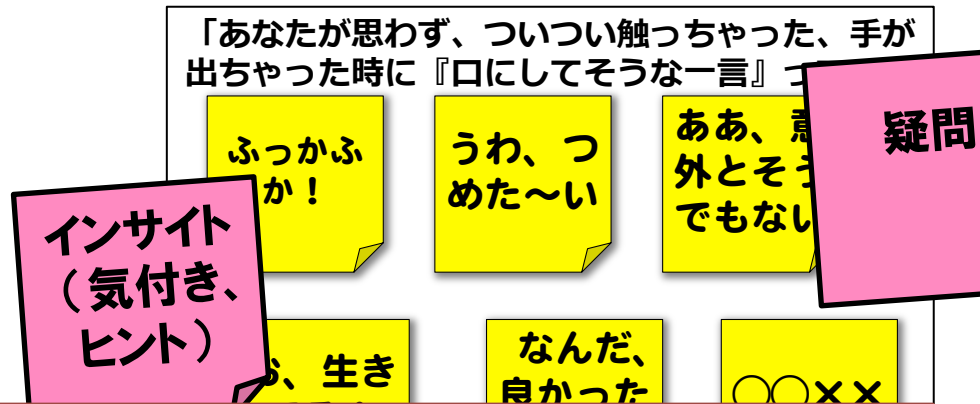
※ブレインストーミングの設問を明確に示して実施すると良い。

意図的に思考の発散を行う工夫をする

Brainstorming Exercise 2

- 実施したブレインストーミングについてディスカッションして下さい。
- **インサイト（気付き、ヒント）** をポストイットに書き出して貼る。
 - 設問を何度か作り直してみてものインサイト？
 - 出てくるポストイットの傾向からのインサイト？
 - 自分たちの思い込み？
 - 自分たちの当たり前？
 - 意外な方向性？
 - 常識のうまい外し方？

【例】



新しい解や解空間を生み出す可能性を探す

Affinity Diagram

[Activity]

- Make groups from your post-it notes and give them unique names.

[What you gain]

- **Bird's-eye view** of your ideas.
 - trends, bias, ...
- **Higher abstraction level information** of your ideas.

Affinity Diagram as a **Discussion Process** with in a group

- You will be discussing not about the individual ideas but **one notch higher in abstraction level**.
- You will be **accommodating the interpretation** of ideas and groups.
- Stay in **innovative thinking mode**
 - You need to strategically choose **what type of grouping** you want:
 - *logical and critical* thinking grouping
 - *creative* thinking grouping
 - You are looking for insights (IOW hints, crews) to **think outside of the box**.

Example

Affinity Diagram

currently it's
some what
universally
understood

highly
dependent
on one's
skills

hand
gestures

facial
expressions

drawing
pictures

dance moves

mimicking

animal
motions
sound

mimic
inse
motion
sounds

savanna
hunters may
actually do
this kind of
things

body
gestur

should probably
conform some
kind of rule or
framework

leg/feet
gestures

drawing
diagrams

Example

currently it's
some what
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Affinity Diagram

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motions
sound

mimic
inse

savanna
hunters may
actually do
this kind of

body
gestur

leg/feet

drawing
grams

**Discuss and find interesting
perspective to group**

Example

Affinity Diagram

やっぱり、
どうしても
触りたかつ
た！

ふっかふ
か！

あ～あつ
たか～い

考えていた
のとは違っ
てちょっと
びっくり

ざらじゃ
ん

ああ、意
外とそう
でもない

お、生き
てる！

うん、予想
通り

なんか変
な感じ

そもそも
触って良
かった
の！？

うわ、
めた～い
かた
固い

実は、

やっぱり…

本当は…

Example

Affinity Diagram

やっぱり、
どうしても
触りたかつ
た！

ふっかふ
か！

あ～あつ
たか～い

考えていた
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和博さ
ざらし
ん

お、生き
てる！

うん、予想
通り

なんか変
な感じ

そもそも
触って良

グルーピングしたポストイットが共有するエッセンスを創造的に見つけ出し、グループ名に反映

Example

Example of Logical vs Creative Grouping

More *logical and critical thinking* type grouping

create visual aid to communicate

hand gestures

facial expressions

leg/feet gestures

body gestures

dance moves

use human body parts to communicate

2015

drawing pictures

drawing diagrams

mimicking insect motions and sounds

mimicking animal motions and sounds

mimic other life form that communicates

Example

Example of Logical vs Creative Grouping

More *creative thinking* type grouping

currently it's some what universally understood

hand gestures

facial expressions

highly dependent on one's skills

drawing pictures

dance moves

mimicking animal motions and sounds

mimicking insect motions and sounds

savanna hunters may actually do this kind of things

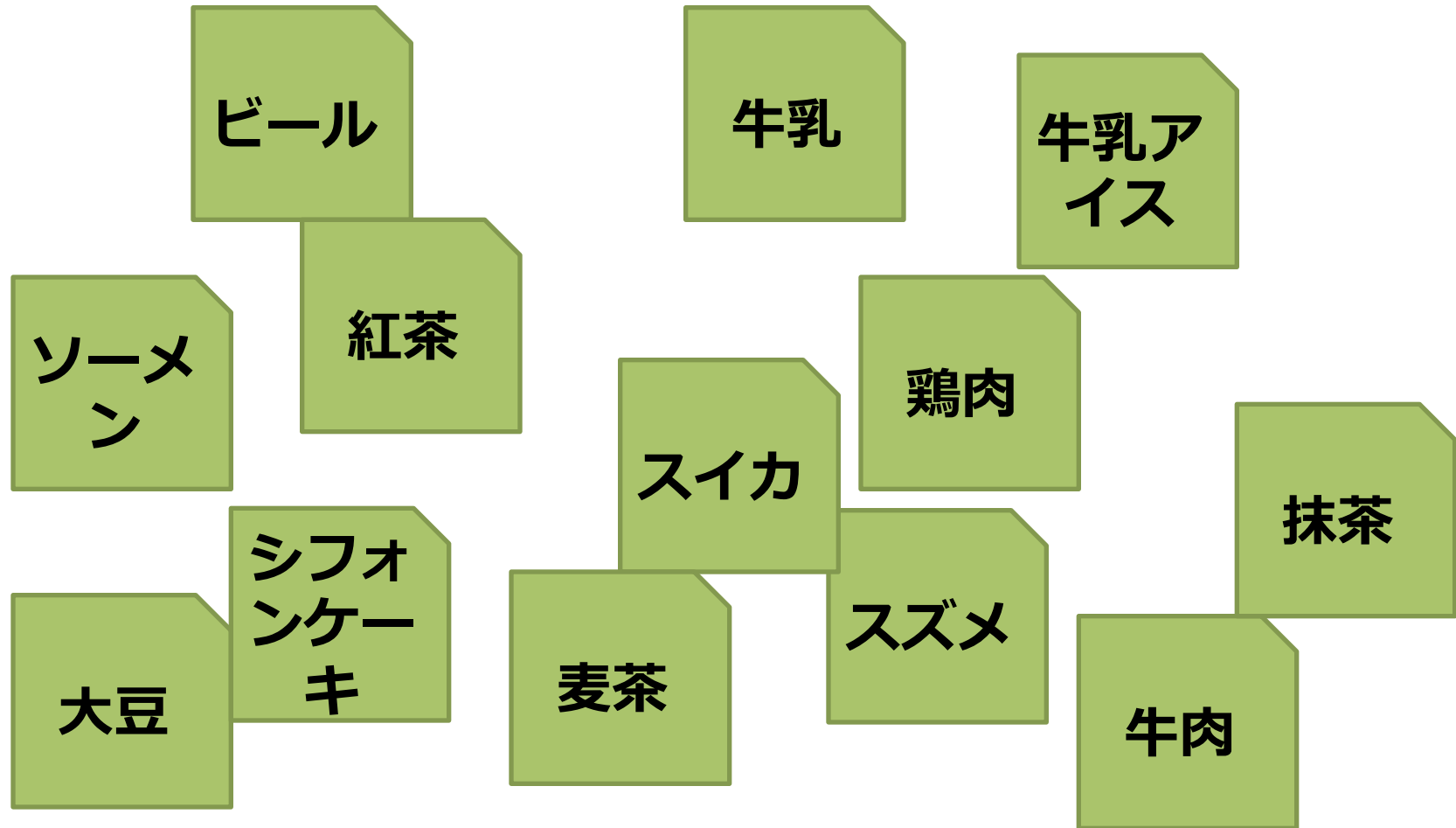
body gestures

should probably conform some kind of rule or framework

leg/feet gestures

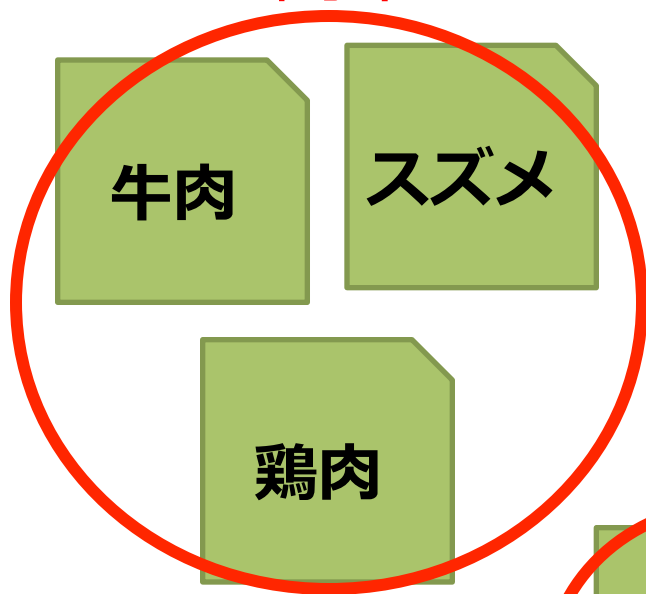
drawing diagrams

「好きな食べ物」から親和図を作成

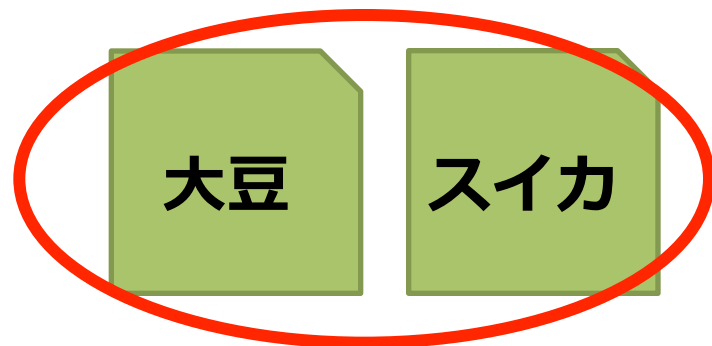


「好きな食べ物」から親和図を作成

肉系



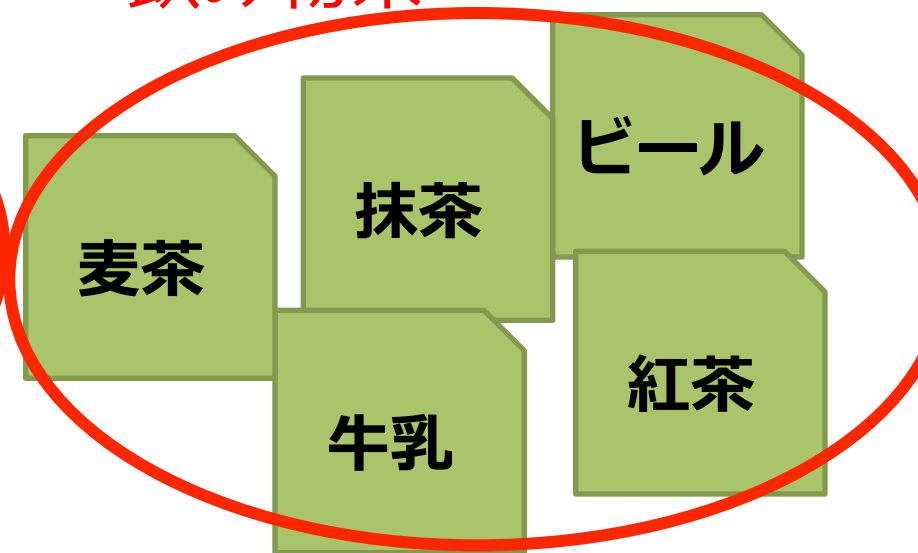
野菜系



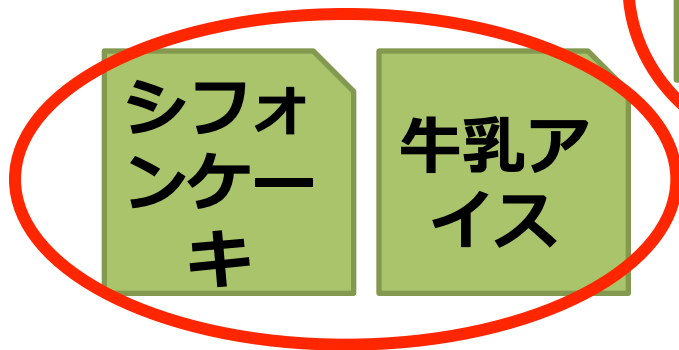
麺系



飲み物系



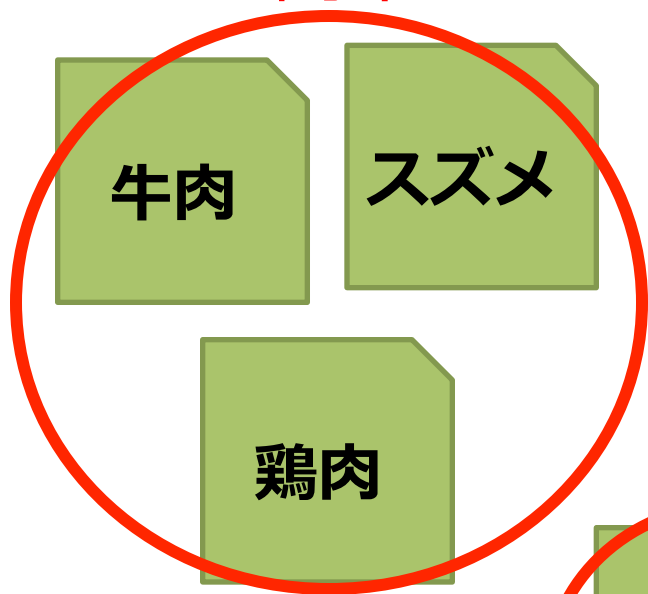
おやつ系



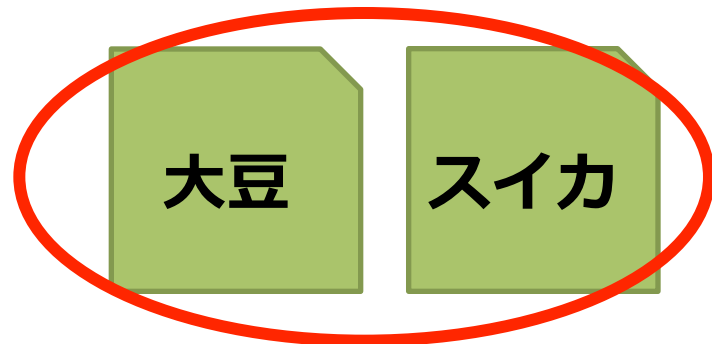
※一般的分類で親和図を作成

「好きな食べ物」から親和図を作成

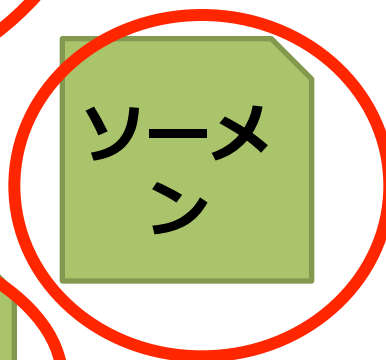
肉系



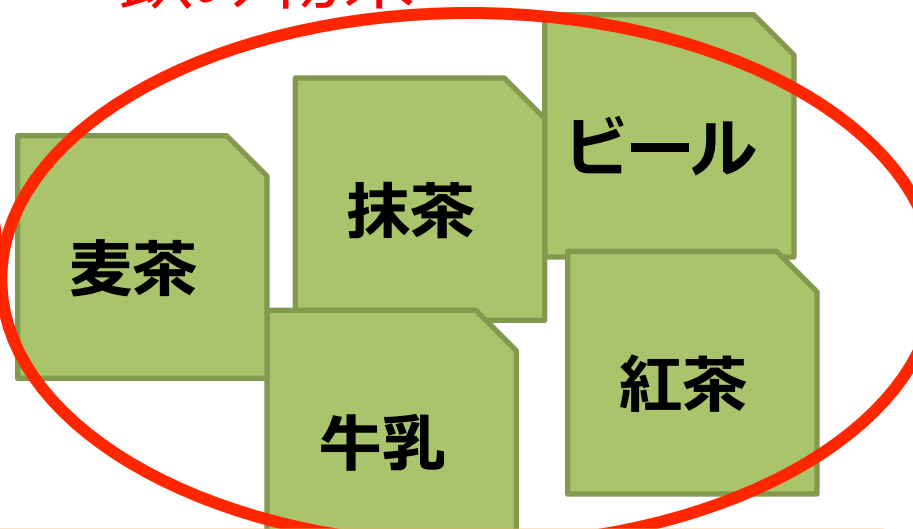
野菜系



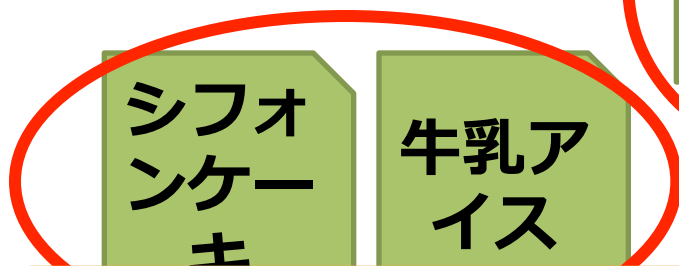
麺系



飲み物系

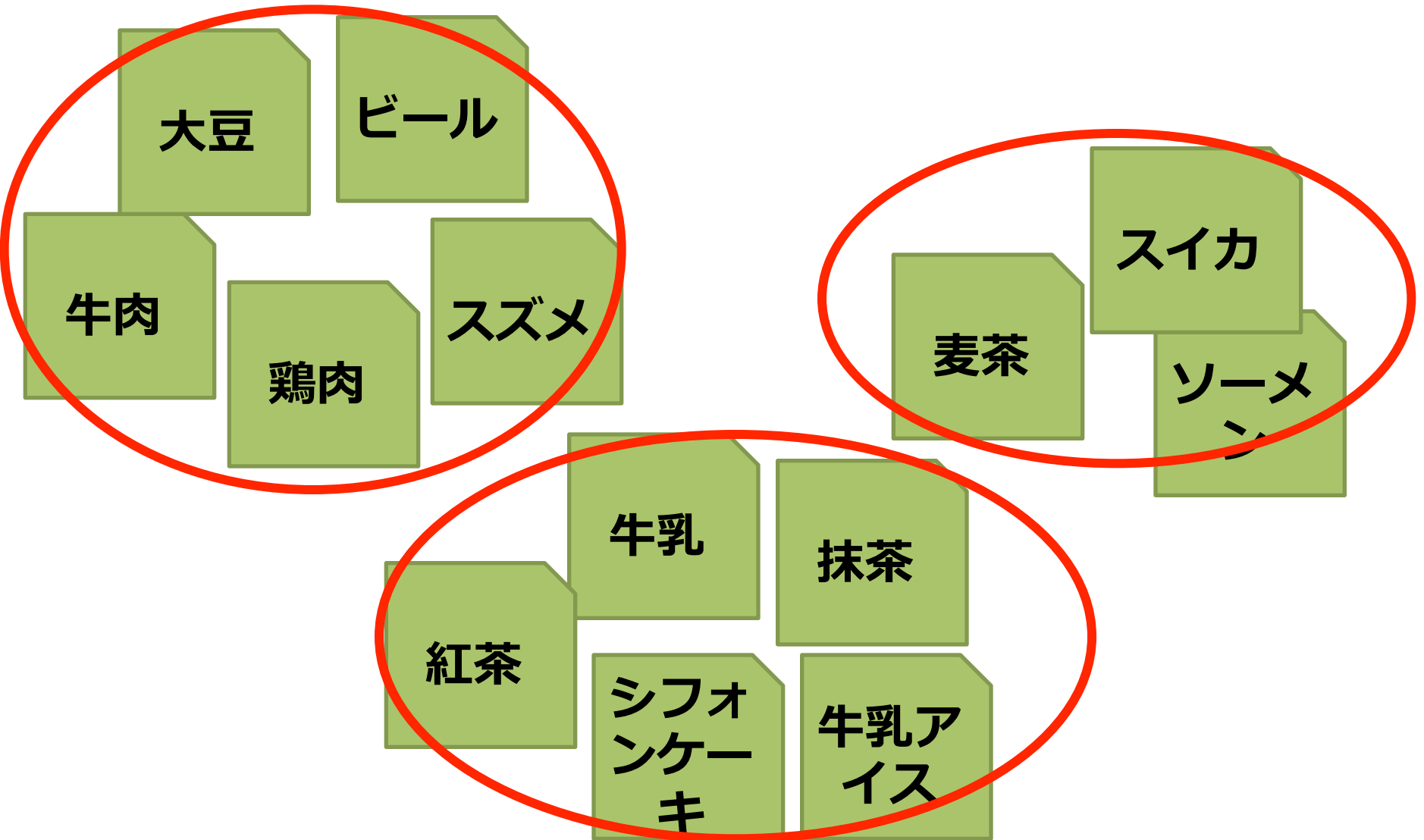


おやつ系

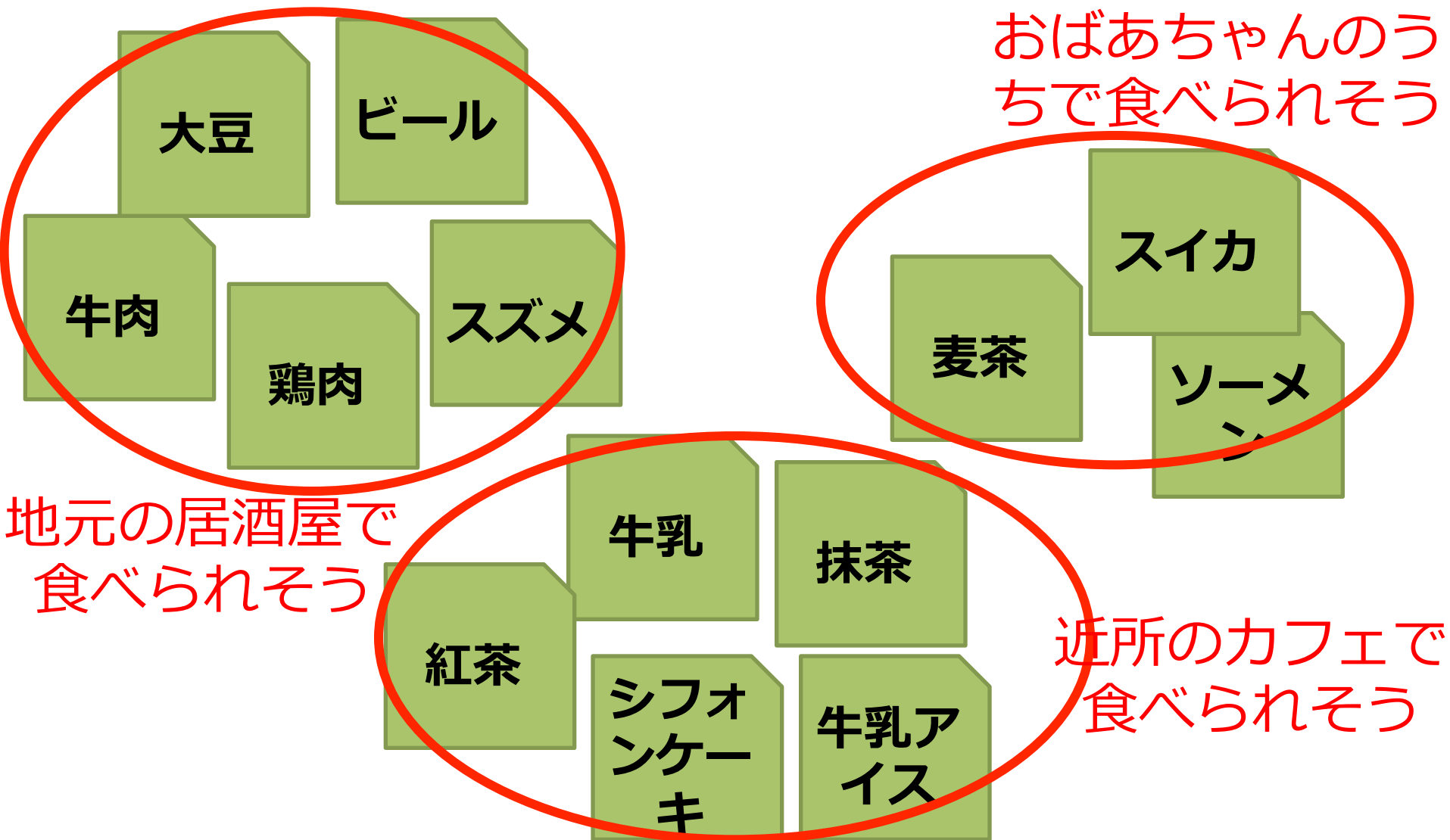


インサイト：粉ものが好きな人がいないという事は、ひょっとして関西出身者がいないのでは？

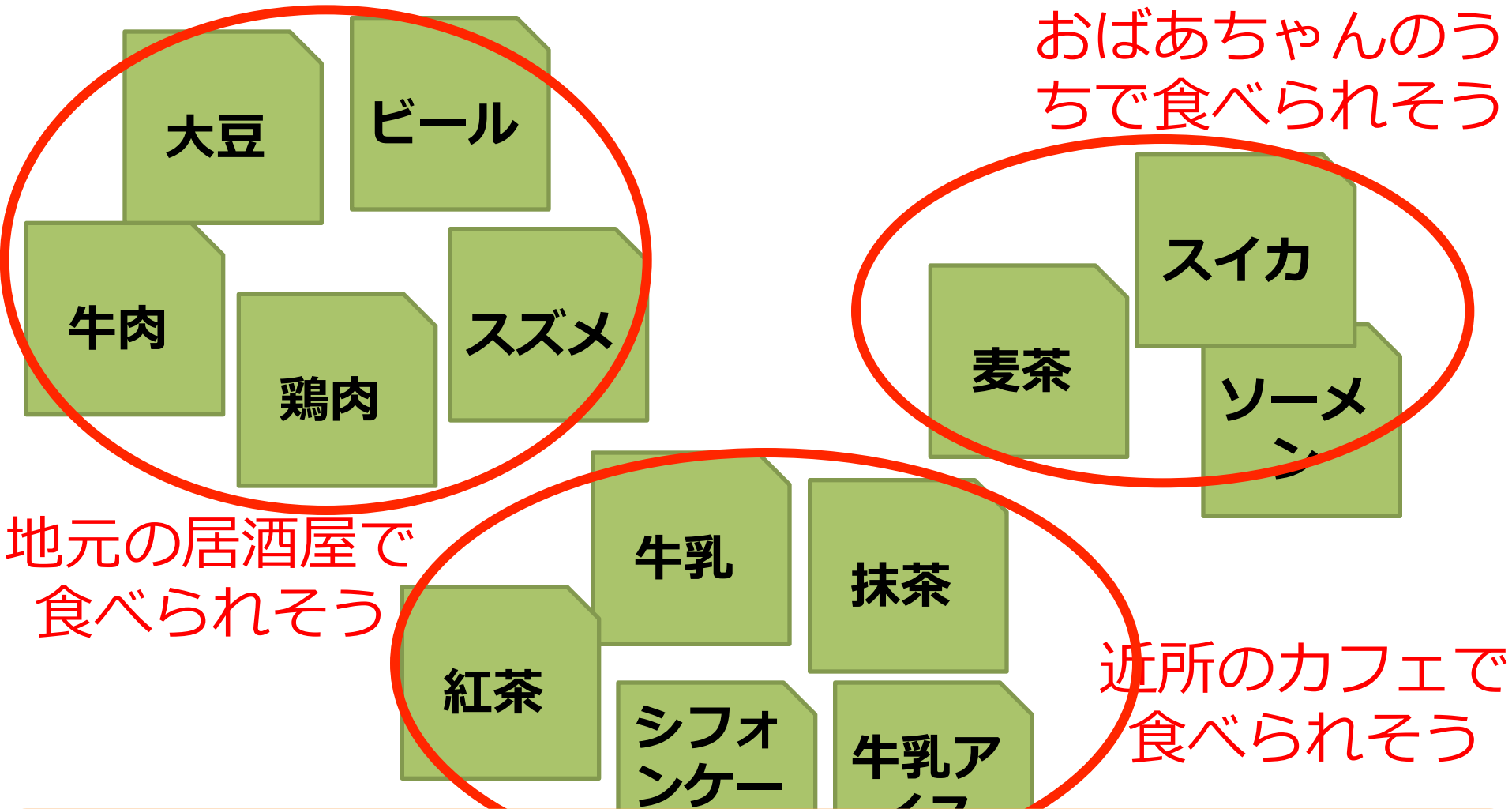
「好きな食べ物」から親和図を作成



「好きな食べ物」から親和図を作成

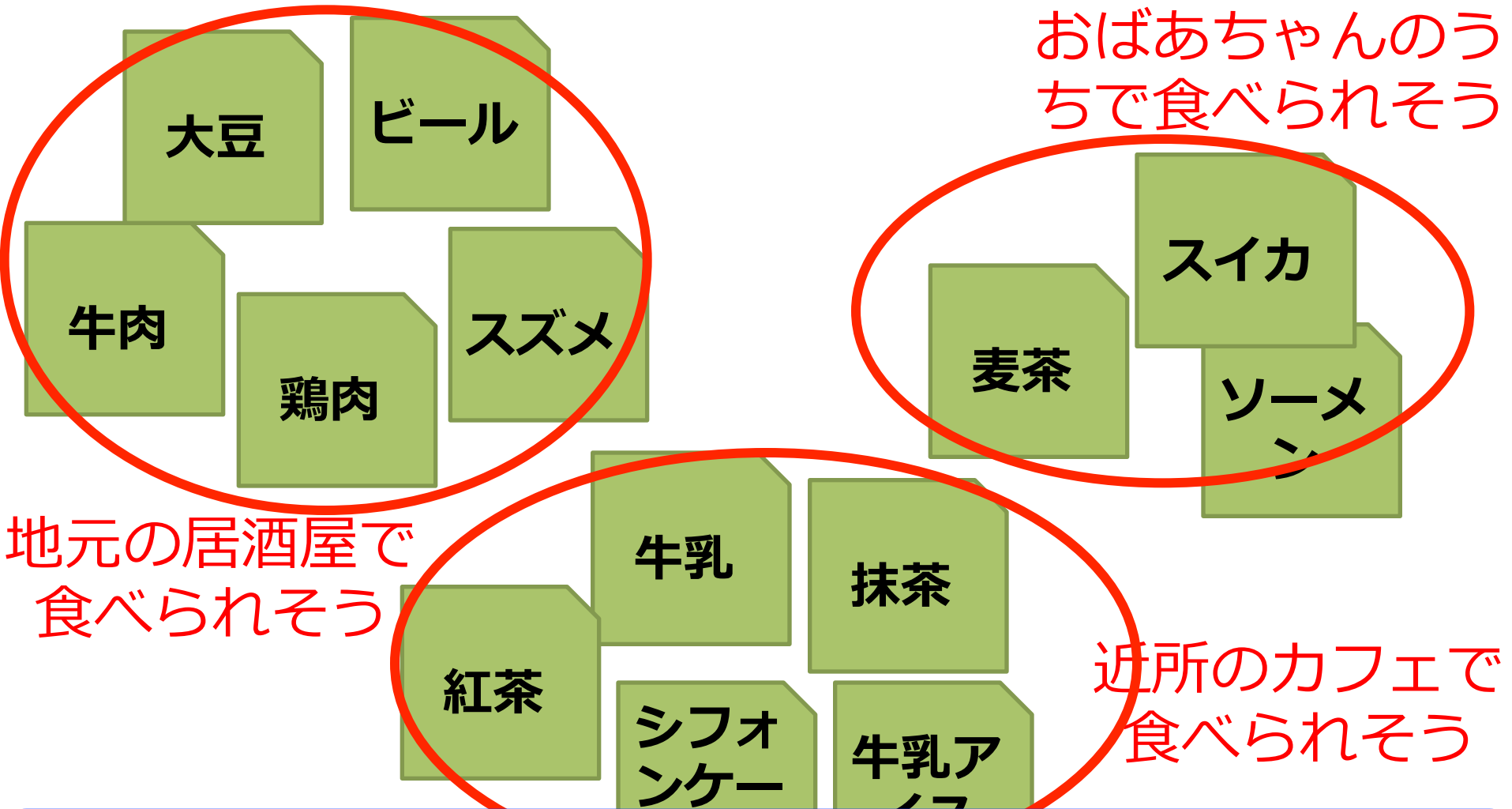


「好きな食べ物」から親和図を作成



インサイト：おしゃれなレストランに行くより、身近なスポットで好きな物を食べるタイプの人が多い様だ。

「好きな食べ物」から親和図を作成



更なるブレストのきっかけ：今出ていない「身近」に感じる食事をする場所は他にどこがあるだろう？

Affinity Diagram Exercise 1

- **Discuss and create Affinity Diagram** from the brainstorming result.
- Try creating Affinity Diagram multiple times with different perspective and affinity definition. (Take a picture once you create one.)
- ❑ When you are making groups and giving them names, try to find insights that may lead the design process to innovative outcome.
- ❑ Do you now see something you did not see when you are brainstorming?

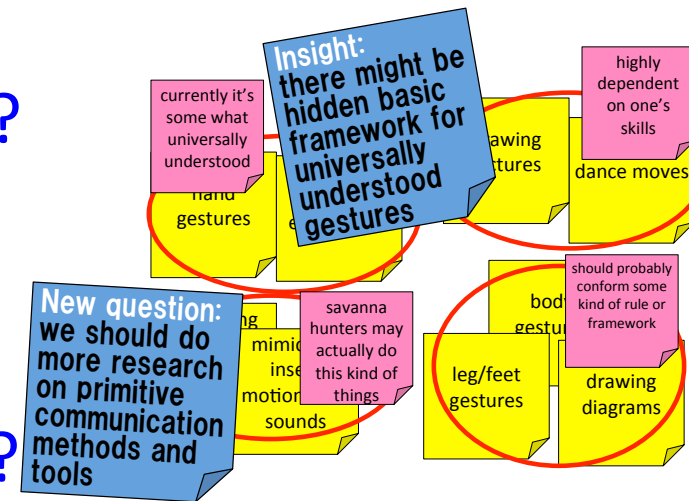
Organize and structure to interpret ideation result

Exercise

Affinity Diagram Exercise 2

- Discuss about your Affinity Diagram session. Both process and output.
- Jot down **interesting finding** and **new questions found** during the discussion. They may be important insights.

- What is interesting about the groups?
- Any surprise or unexpected?
- What was discussed when you changed the group name?
- Any uncommon but essential finding?
- Any indication for further idea exploration?



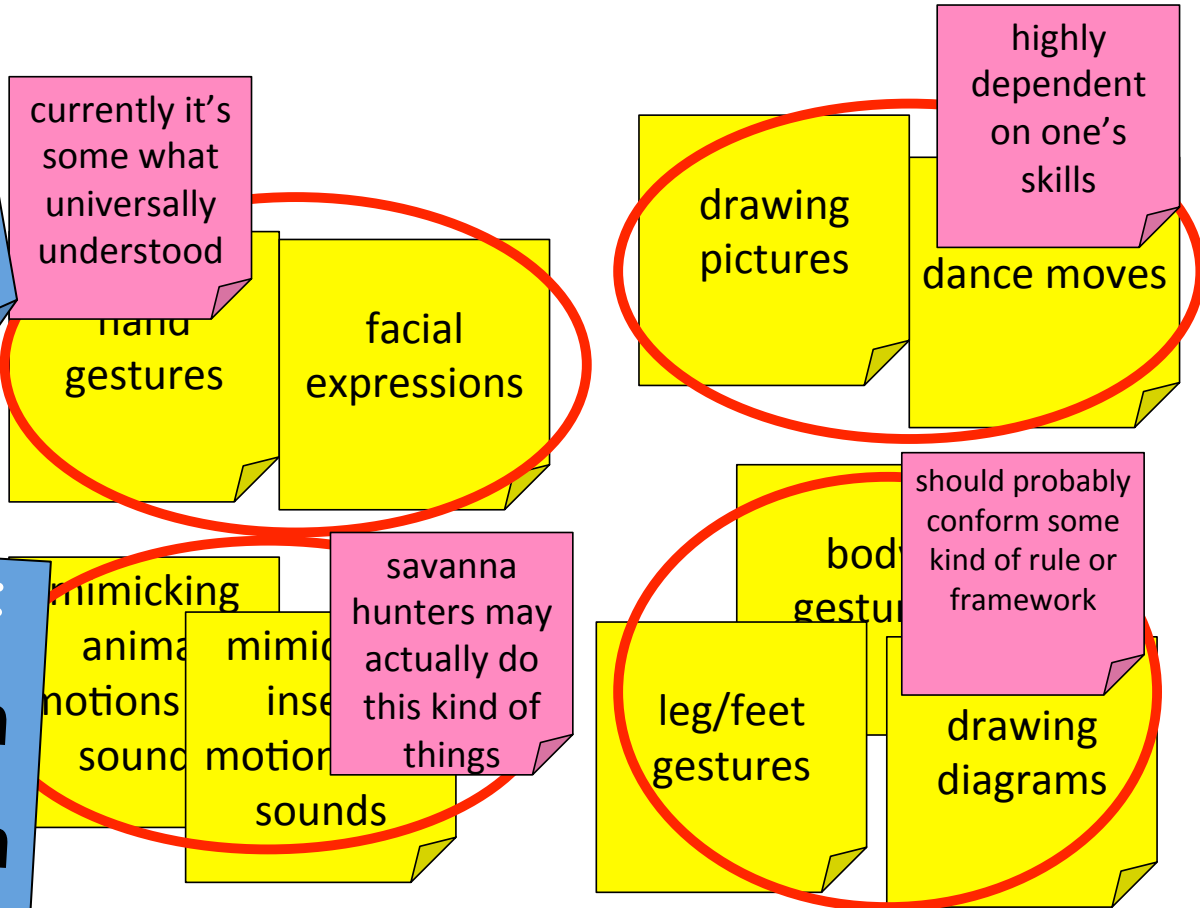
Discuss what is interesting and unfamiliar to find innovative insights

Example

Affinity Diagram

Insight:
there might be implicit basic framework for universally understood gestures

New question:
we should do more research on primitive communication methods and tools



Discuss what is interesting and unfamiliar to find innovative insights

Affinity Diagram Exercise 1

- ブレインストーミングの結果から、**親和図を作成して下さい。**
- 別の親和性などを考えながら複数回**作成しても良い。**（一度作ったら写真撮影）
- ブレインストーミングしている時には**気がつかなかった親和性**はなんだろうか？
- 自分たちの課題の解決へ導いてくれる**ヒント**や**刺激**になり**そうなグループ名**を考える。

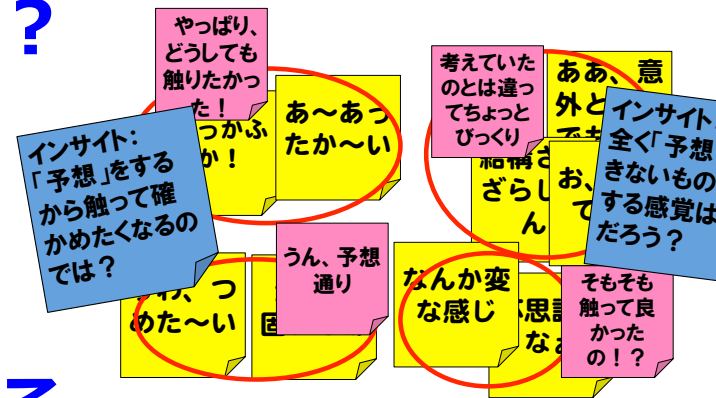
ブレインストーミングの結果を構造化し解釈する

Affinity Diagram Exercise 2

ロテーマや課題についても踏まえながら、作成した親和図についてディスカッションして下さい。

ロインサイトをポストイットに書き出して貼る。

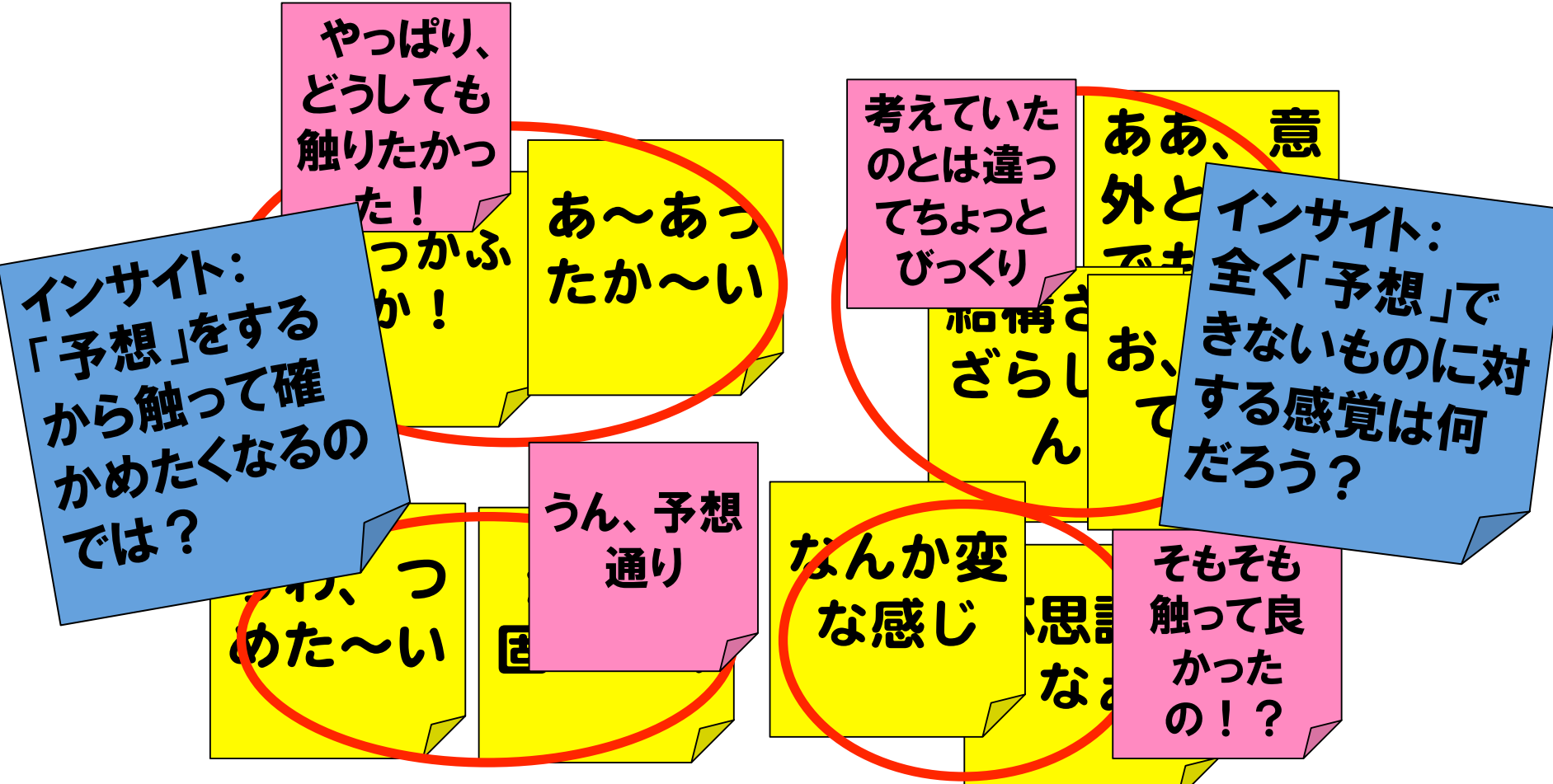
- グループの持つおもしろさは何か？
- 意外性は無いかな？
- なぜグループ名を修正したのかな？
- 常識や当たり前前から外れているが本質的な事は無いかな？
- もっとブレインストーミング出来るようなインサイトは無いかな？



グループの持つイノベーティブな
“おもしろさ”や“本質”を抽出する

Example

Affinity Diagram Exercise 2



グループの裏側にあるイノベーティブな
“おもしろさ”や“本質”を抽出する

Ideation Methods

- **Free** Association Measure
 - Brainstorming, ...
- **Forced** Association Measure
 - Osborn's Checklist, Matrix Measure, ...

Forced Association

- **Forced Association** Measure
 - It means different variations of idea are generated using a set of conditions or rules.
 - You want to choose the conditions or rules so you can explore the solution space further.
 - It may be effective for those who are not yet familiar with Free Association Measure such as brainstorming.





TEDxTokyo

x = independently
organized TED event



DENSO



D
Dewar's.

KOKUYO



TEDxTokyo Shinpei Takahashi (2013)

[Example] Bandai: Infinite Bubble Wrap



http://ecx.images-amazon.com/images/I/31Qv2n1GExL._SY300_.jpg

- **Bubble wrap associated with toy** idea.
- Forced random association generated an out of the box idea.
- **Association randomness** was introduced by word-chain game.

【例】バンダイ 無限ぷちぷち



http://ecx.images-amazon.com/images/I/31Qv2n1GExL._SY300_.jpg

- **ぷちぷち (緩衝剤) とおもちゃの強制連想**による発想。
- 全然関係の無い二者を掛け合わせることで**他の人が思いつかなかったアイデア**を創出。
- しりとりによって意図的に連想に**ランダム性**を持たせて強制連想をするという工夫が秀逸。

Forced Association Matrix

- A kind of **Forced Association** Measure
 - *Force associate two items to generate ideas* on a matrix format.
- It is to **explore the solution space!**
 - Remind yourself that you are not looking for the greatest idea to appear on the matrix but you are exploring more options and looking for insights.
 - Stay on “Brainstorming mode”
 - *welcome wild/crazy ideas!*
 - *give every post-it note a short positive feedback!*

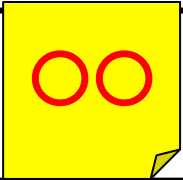
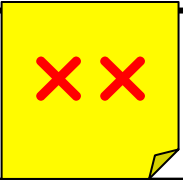
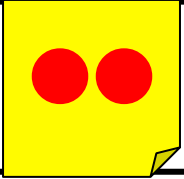
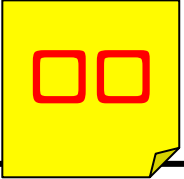
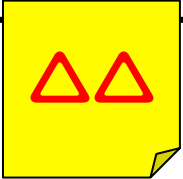
Forced Association Matrix

Ideation question: “How might we ...?”

	Column item 1	Column item 2	...
Row item 1			
Row item 2	ideas generated		
Row item 3			
2015 ...			

Forced Association Matrix

Ideation question: “How might we ...?”

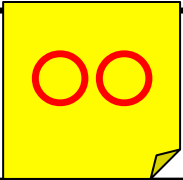
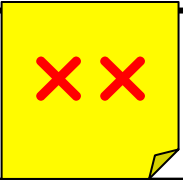
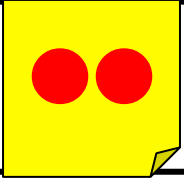
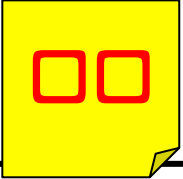
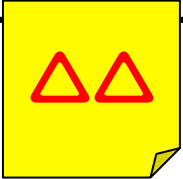
	Column item 1	Column item 2	...
Row item 1	 		
Row item 2			
Row item 3			
2015 ...	Keio EDGE		73

Example

Forced Association Matrix

Ideation question:

“How might we communicate face-to-face without a common language?”

	Within family	Among friends	Neighborhood
Body parts	 		
Device			
Sound			
2015 ...			

Exercise

Forced Association Matrix 1

- Discuss and create Matrix. Decide the ideation question, items in rows, items in columns.
- Conduct **forced association on the matrix**.
- How do you introduce the randomness to the matrix?
- What can you do to find innovative perspective or insight?

You are forcing unusual discussions to generate unusual ideas!

Ideation question: “How might we ...?”

	Column item 1	Column item 2	...
Row item 1	○○ ××		
Row item 2		●●	
Row item 3	□□		
...			△△

Forced Association Matrix 2

- Discuss about your Forced Association Matrix session. Both process and output.
- Jot down **interesting finding** and **new questions found** during the discussion. They may be important insights.
- ❑ Some ideas may have interesting point-of-view or hints.
- ❑ Crazy looking idea may trigger innovative insights.
- ❑ Controversial idea may have a hints to break the bias.
- ❑ You re-interpret the post-it notes to look for insights.

Unusual ideas may give you new and valuable insights!

Forced Association Matrix 1

- テーマと課題について議論しながら、**強制連想のマトリックスの作り方**考えて下さい。
- 作ったマトリックスを使って**強制連想を実施**。
 - 連想の**ランダム性**、**意外性**をどのように持たせるか？
 - テーマと課題に対して**イノベーティブな着想**や切り口を与えるにはどうすれば良いか？

強制連想：マトリクス法

行と列の項目を掛け合わせ、**強制的にアイデア**を創出する方法。

【お題：○○を△△するには？】

	列①	列②	...
行1	○○ ××		
行2		●●	
行3	□□		
...			△△

これまで考えた事も無い
事を意図的に考える工夫

Forced Association Matrix 2

- 強制連想を実施したマトリックスの結果について、**テーマや課題を意識しながら**ディスカッションして下さい。
- **インサイト**をポストイットに書き出して貼る。
 - アイディアのもつ着眼や切り口にイノベーティブさが潜んでいるのでは？
 - 一見馬鹿げたアイディアに何か本質的なヒントはないか？
 - 物議を醸す様なアイディアに、常識に囚われずに課題を解決するヒントが隠れていないか？

課題を解決する、思いもよらない着眼、着想、切り口などをインサイトとして抽出

Design Thinking in Action: Prototyping and Testing

It's Human-Centered.

常に人間を意識しながら考える

It's Collaborative.

多様性を活かすことによる恩恵

It's Optimistic.

必ず答えはあると信じる

It's Experimental.

早く、たくさん失敗してその経験から急速に学ぶ

Prototype and Testing

- Prototyping is never a goal. It is created to look for the goal.
 - **Prototype without test is merely a visual aid** of your presentation.
 - A buzz concept/word “3D Printer” is just one kind of many prototyping methods and techniques.
 - You need to be able **to look for your appropriate prototyping method and testing method.** Also develop one if there is no suitable one.
- ◆ **Why you prototype and test?**
 - ◆ **What you prototype and test?**
 - ◆ **How you prototype and test?**

Prototyping and Testing: Disclaimer

- The explanation used in this material is NOT intended to be universally acknowledged. The explanation is mainly targeted to clarify the difference between the concept of prototyping that is used in the context of conventional Japanese manufacturing and that of Design Thinking. Some of the terminology used in this material is from the Systems Engineering domain.

プロトタイピングとテスト

- プロトタイプを作ることが目的ではない。
- プロトタイプはあくまでも「最終成果物」を生み出すためのきっかけ、踏み台、捨て石、途中経過などである。
- プロトタイプはテストしなければ、ただのvisual aid(賑やかし)でしかない。
- 次のイノベーション創出アクティビティを見出すために、プロトタイプを作り、テストし、新しいインサイトなどを見つけるのである。
- 間違っても、「プロトタイピング＝3Dプリンターを使う」ではない。

プロトタイピングとテスト

- この資料中のプロトタイプおよびプロトタイピングの説明は、従来もの作りのそれとの違いが分かり易くなるような説明の仕方をとっています。普遍的な説明ではない事に注意して下さい。

What is “Prototype”

mockup? engineering model?

The Prototype mode is the iterative generation of artifacts intended to answer questions that get you closer to your final solution.

(d.school An Introduction to Design Thinking
PROCESS GUIDE)



Prototype is built to answer your questions!

Two types of questions prototype can answer: **Verification and Validation**

- **Verification**
 - You *verify* functionality of the design
 - You *verify* performance of the design
 - You *verify* against your intention
 - “Do the **thing right**” confirmation

- **Validation**
 - You *validate* the design
 - You *validate* the concept
 - You *validate* against stakeholders and context
 - “Do the **right thing**” confirmation

Prototype vs Final Solution

- **Prototype** is created to get closer to your final solution.
- **Final Solution** is developed on findings and insights acquired from prototyping and testing.

Prototype vs Final Solution



HONDA
The Power of Dreams

UNI-CUB

Paper Airplane

Prototype vs Final Solution



HONDA
The Power of Dreams

UNI-CUB

Paper Airplane

Prototype vs Final Solution



UNI-CUB is a prototype

UNI-CUB is a **prototype** of near-future personal mobility product. It is currently validating its concept “mobility that blend in human and human environment”.

HONDA
The Power of Dreams

UNI-CUB

Prototype vs Final Solution

Paper Airplane is the final solution

This paper airplane was designed and built to play with it. It served the purpose therefore it is the **final solution**.





HONDA: UNI-CUB



Prototype is not about the **look**

~~Prototype looks re
The first solution is great.~~



**Prototype is built to answer question(s).
Question is important.**

Good question for prototyping

- **A good question** that you want to find answer by creating prototype helps you to **clarify** the following questions:

Why you prototype and test?

What you prototype and test?

How you prototype and test?

Example of a good question for prototyping:

“do my users appreciate fake nail type watch?”

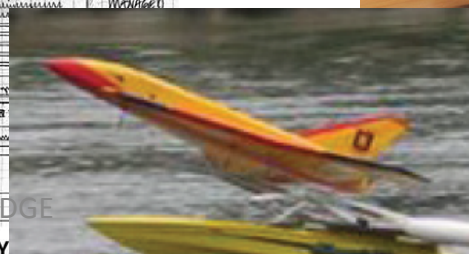
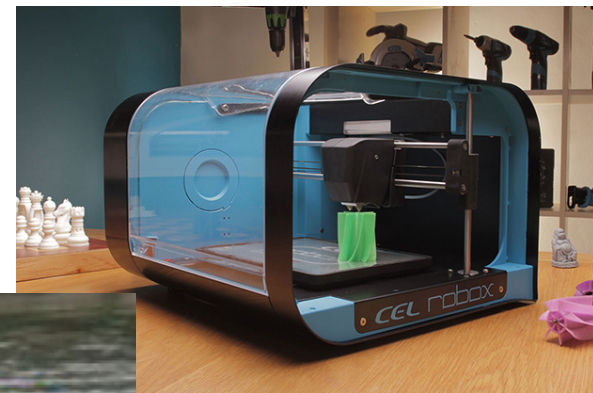
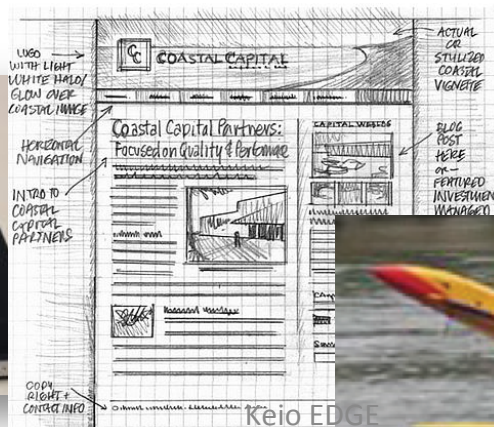
Various **types** of prototyping

- There are so many **different types** of prototyping methods and techniques.
- Every type **have strong and weak** points.
- Choose prototyping type **based on your question.**



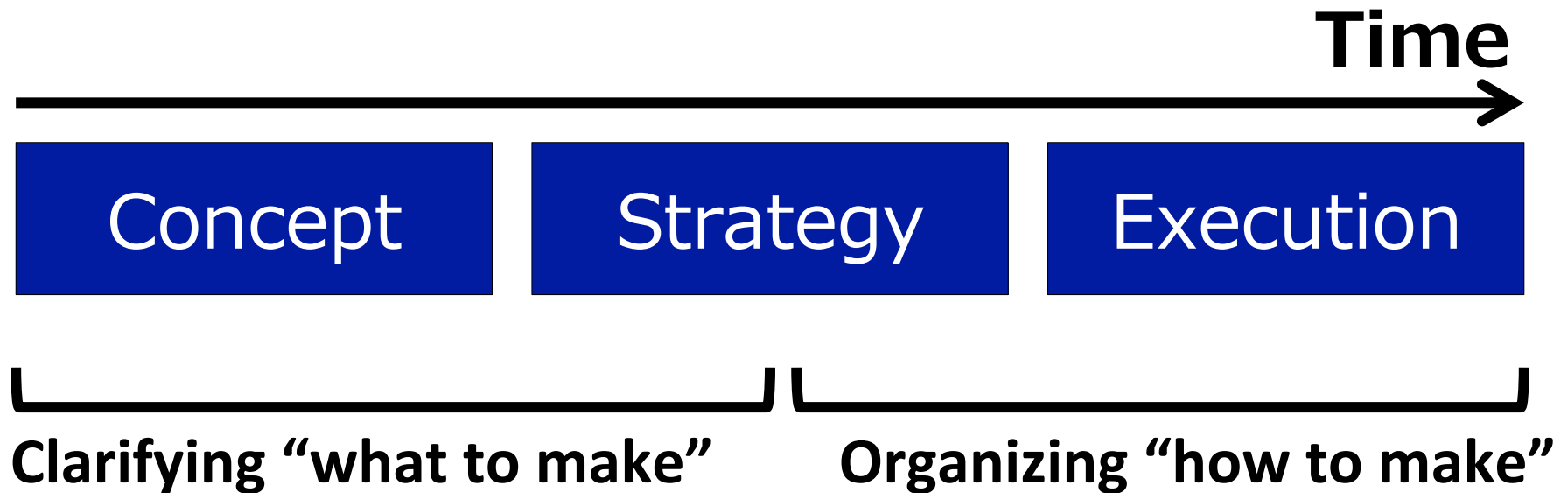
2015

Wireframing and Website Prototyping

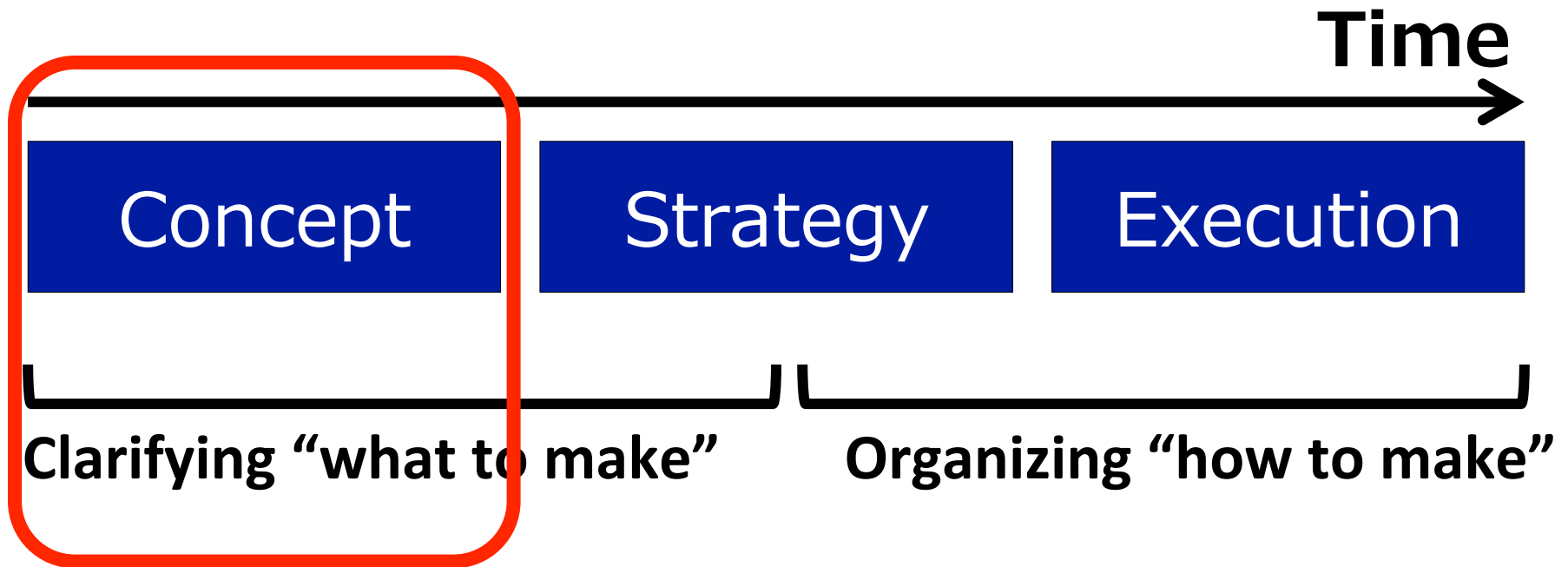


Best Free Tools To Design Y

Prototyping and **project phases**



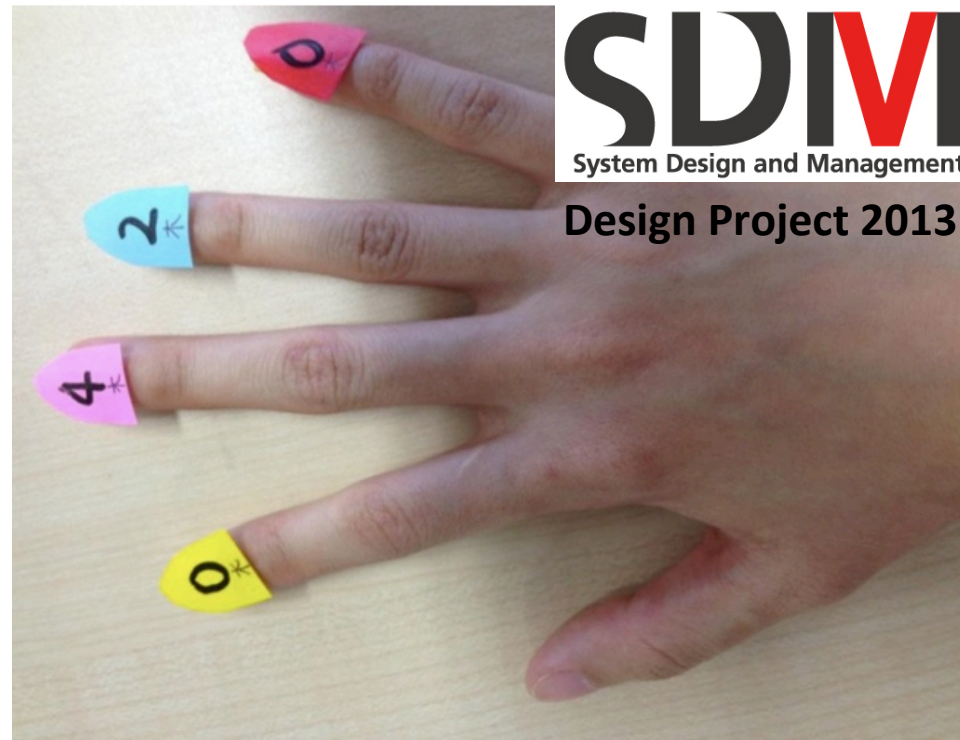
Prototyping and project phases



It is far more important to confirm “do the **right thing**” in early phases of the project.

Early validation mindset is a key for a success.

Wearable time telling device



Tried on several paper-made fake nail type watch for half a day and realized it does not bother much to do things and also no need for the thumb type.

Early validation of the concept

Easy to use surgical instrument



This prototype was built in the first meeting of IDEO and medical doctors. It was built with stuff around the meeting table.

Reference:

“The art of innovation” Tom Kelly, 2002

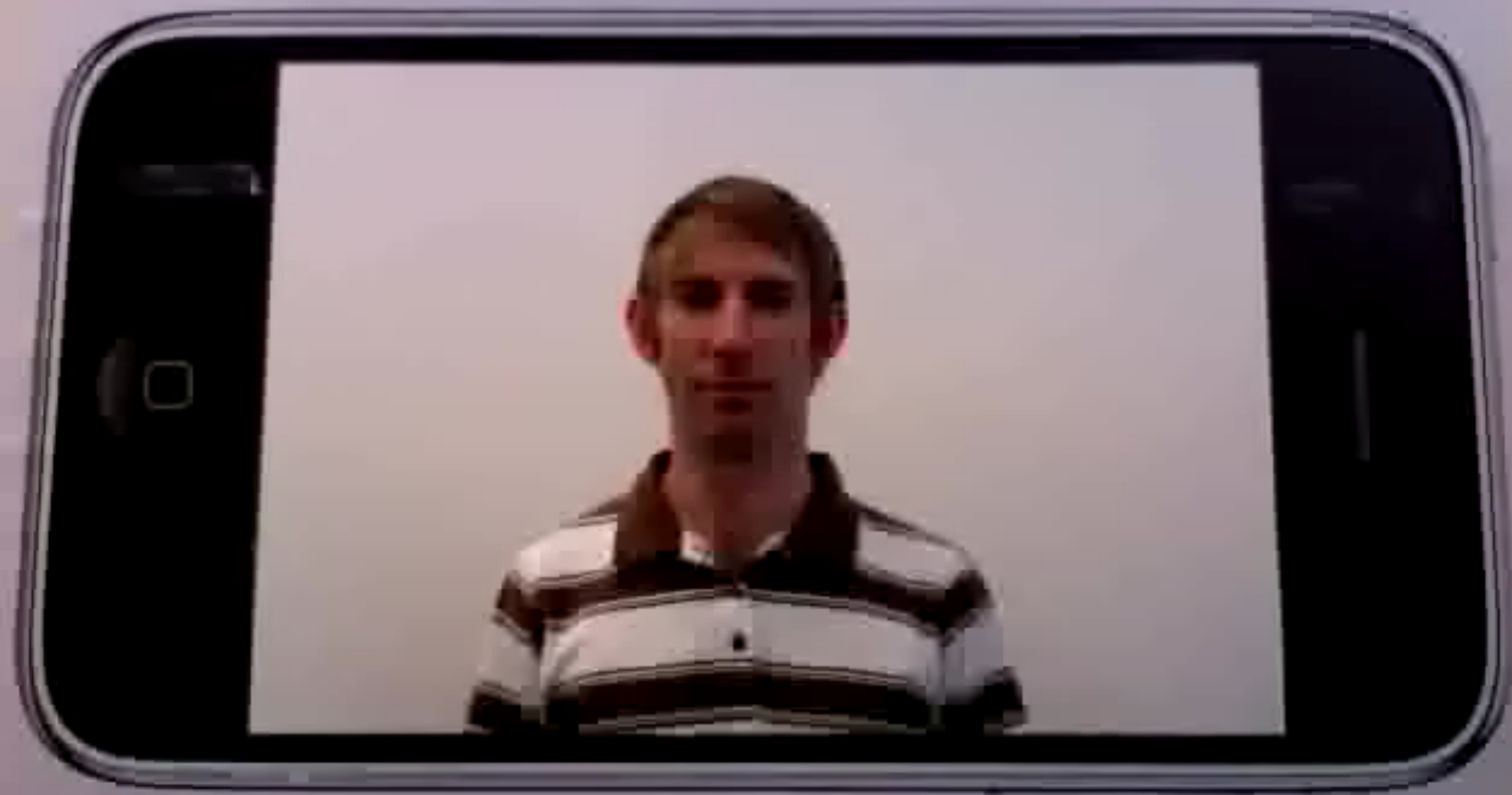
Helped to communicate the concept in very early phase

Easy to use surgical instrument



Reference:

“The art of innovation” Tom Kelly, 2002



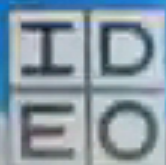
Keio EDGE

123

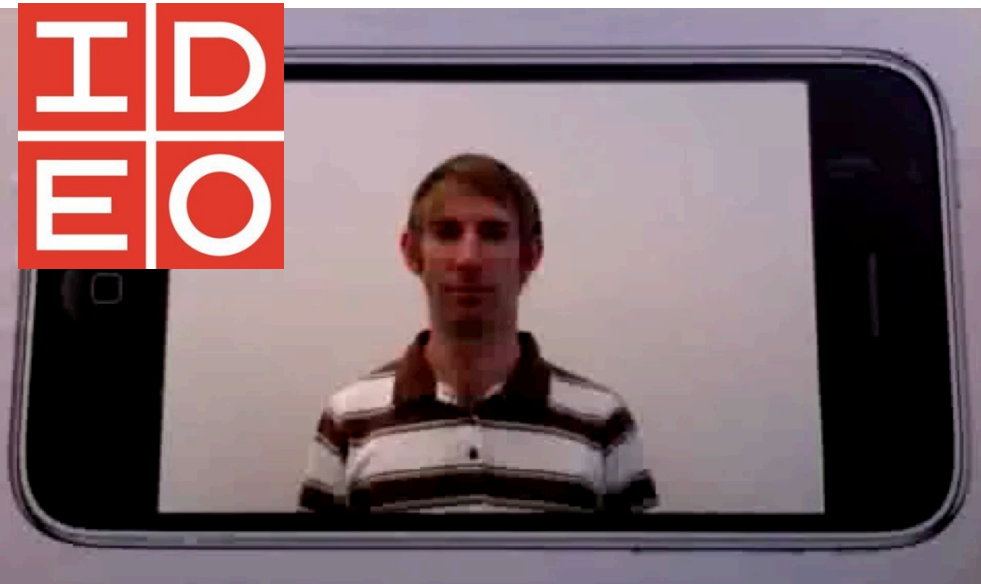
SESAME STREET

ELMO'S MONSTER MAKER

CREATED
WITH



New smartphone App for kids



IDEO wrote not a single line of program to prototype their smartphone App user interface. Very cost and time effective prototype.

Reference: IDEO

Creatively confirmed how App would look and feel like in very early phase

So, **when** do I prototype and test?

[Before prototype and testing]

- We won't know unless we do it.
- Let's just do it and see what comes out.
- If we find an answer to this that will take us further.

[After prototype and testing]

- **We knew it!!**
- **What!? Why did that happen?**
- **We would never found out if we didn't try it out.**
- **Okay, now we know what to do!**

Keep in mind that “doing” with prototype teaches you more than you imagine!

Exercise

Prototyping question and prototype planning

- You and your team are prototyping and testing your idea or insight **tomorrow**.
- Plan the following regarding tomorrow's prototyping and testing plan.
 - ✓ **Where to meet?**
 - ✓ **What to bring?**
 - ✓ **What we build?**
 - ✓ **How to test?**
 - ✓ **What is expected? ... more**

What is a good question to ask?
How can we conduct early validation?

プロトタイピングを考える

- 明日、あなたのインサイト(とアイディア)のプロトタイピングとテストを行うことになりました。
- チームメンバーにプロトタイピングとそれを使ったテストを行うことを**メールで伝えてください**。

- ✓ どこに集合する？
- ✓ 何を持ってくる？
- ✓ 何を作る？
- ✓ どんなテストをする？
- ✓ 何が分かりそうか？

やってみて確認したい本質は何か？
どうやれば確認できそうか？

