

6.1040: *Software Design*

Arvind Satyanarayan & Daniel Jackson

A room with red and gold patterned wallpaper. A large elephant sculpture, also covered in the same red and gold pattern, stands in the center. A woman is sitting on a patterned sofa to the left. There are framed portraits on the wall and a chandelier hanging from the ceiling.

Who's heard of ChatGPT?

sentiments.ts

write_sql.go

parse_expenses.py

addresses.rb

```
1 #!/usr/bin/env ts-node
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3 import { fetch } from "fetch-h2";
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17
```



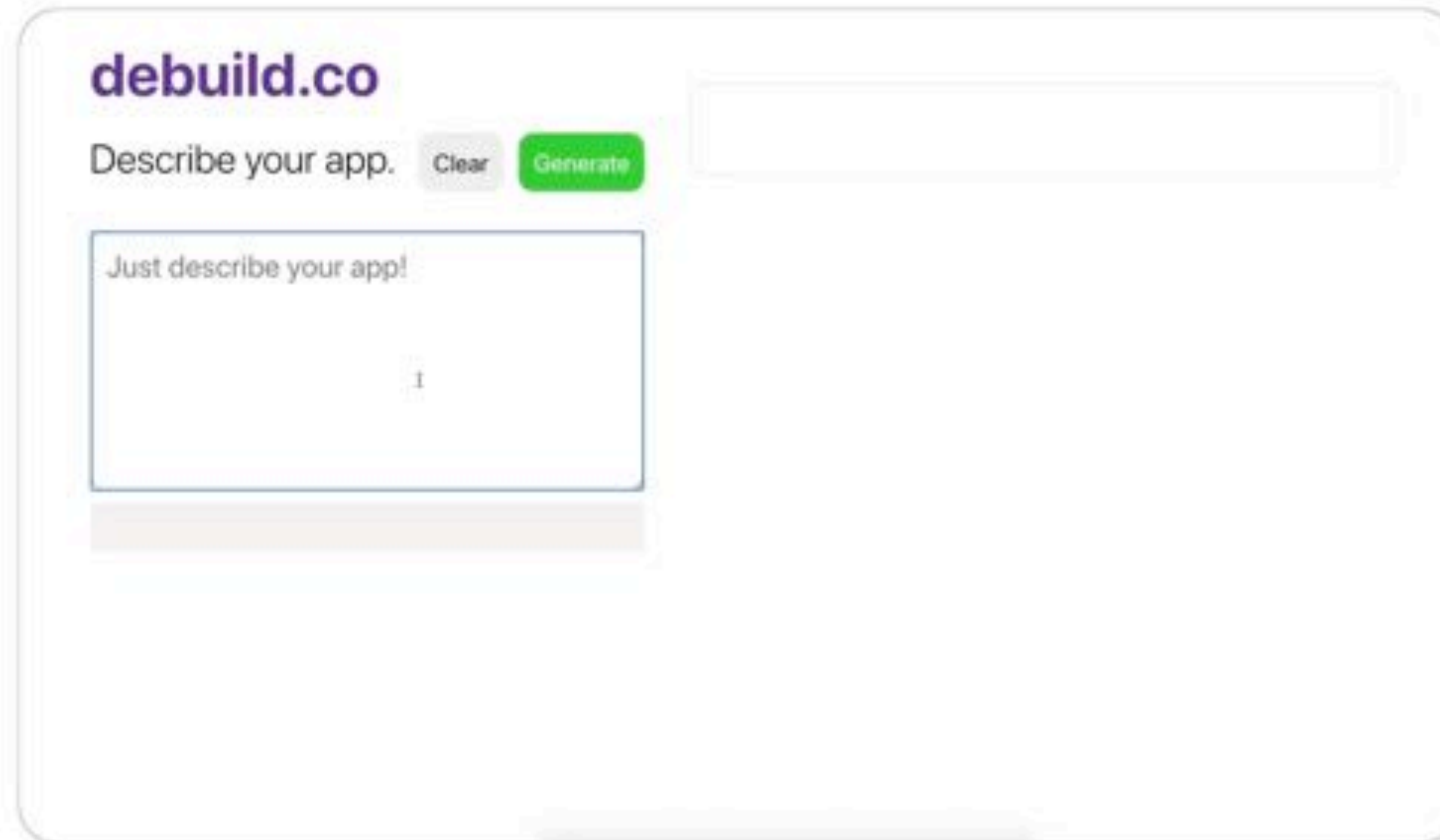
Sharif Shameem ✓

@sharifshameem



I just built a *functioning* React app by describing what I wanted to GPT-3.

I'm still in awe.

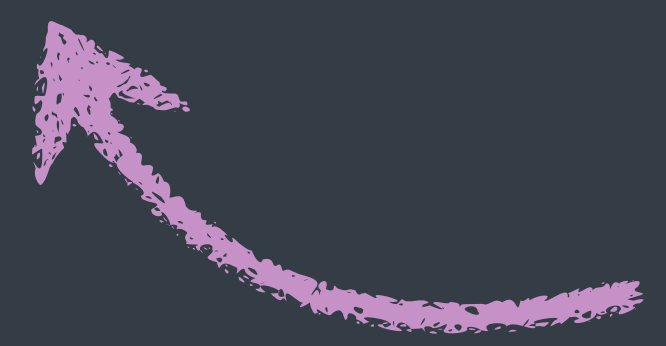


7:58 AM · Jul 17, 2020

So...

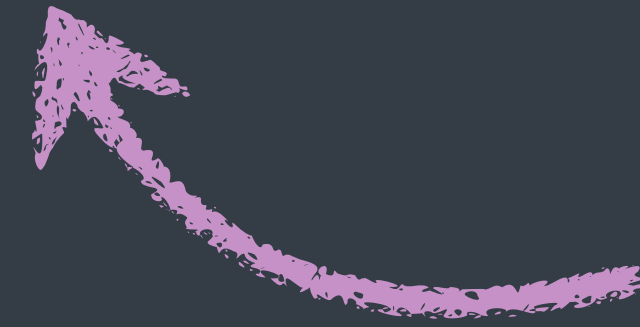
**what's the point of a class
on full stack web app dev?**

This is a class about
software *design*

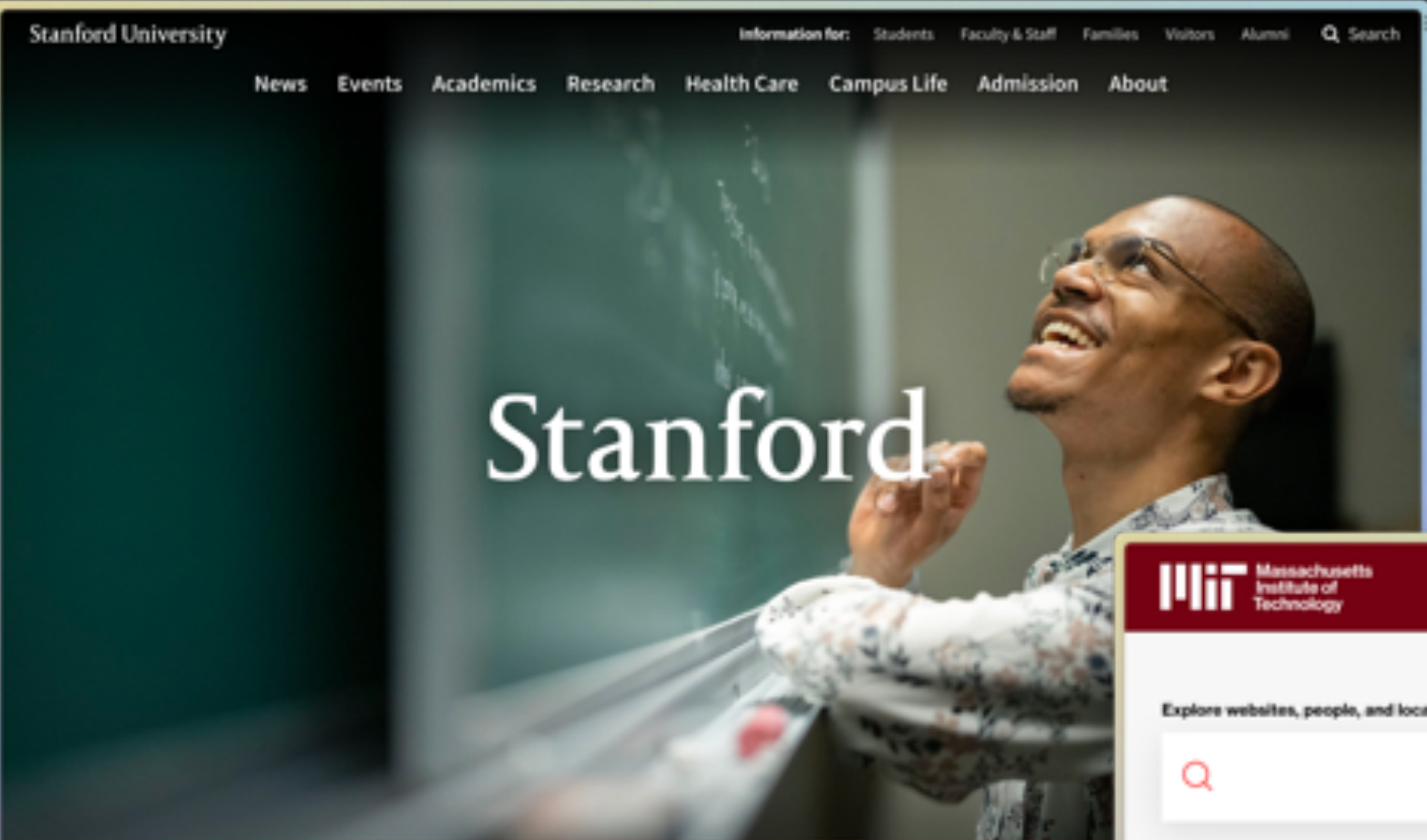


What does this
word mean to you?

This is a class about software *design*



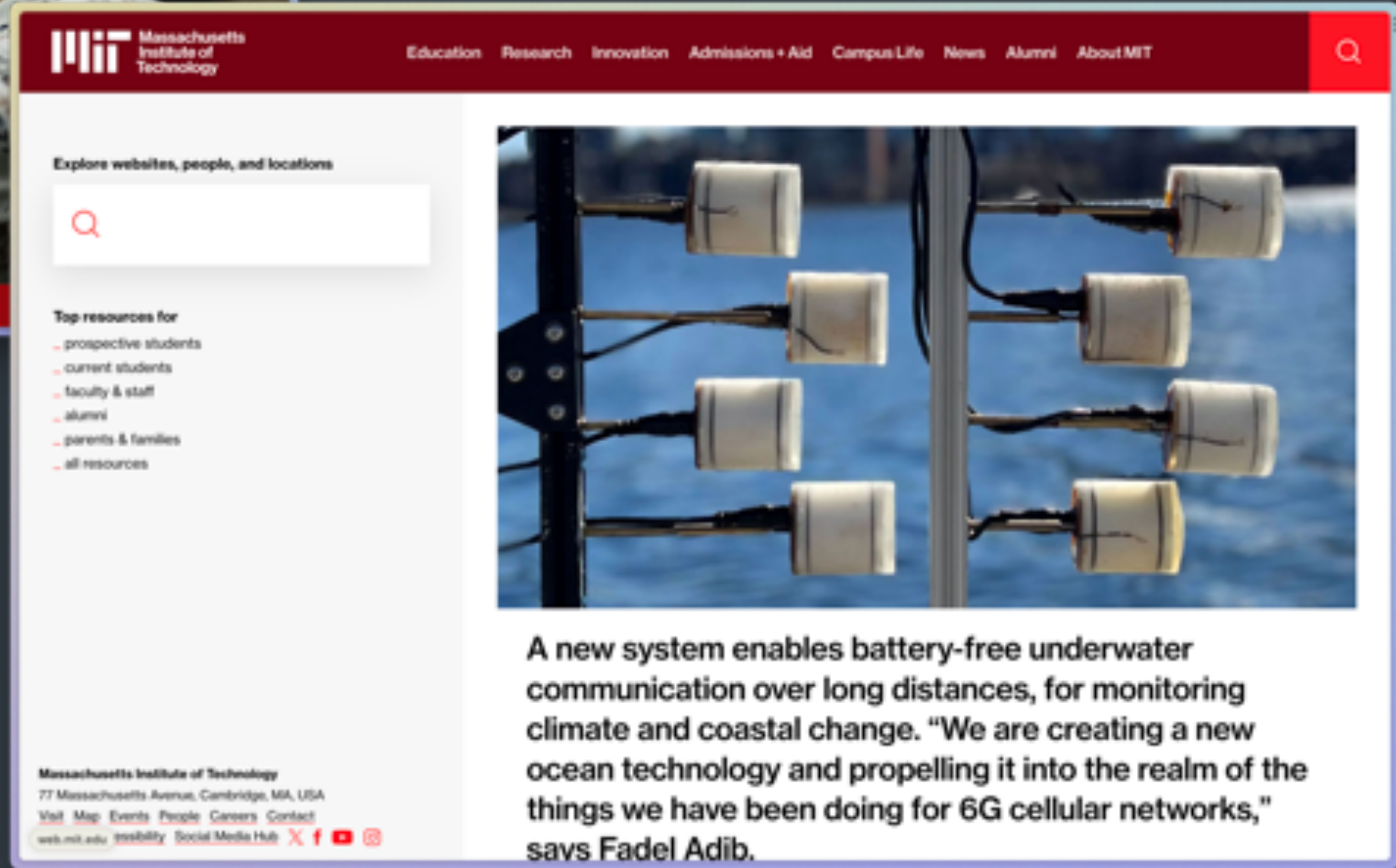
- ✓ How it looks
(*visual design*)
- ✓ How it works
(*interaction design*)
- ✓ How it's structured
(*conceptual design*)



Design Critique: Stanford vs MIT

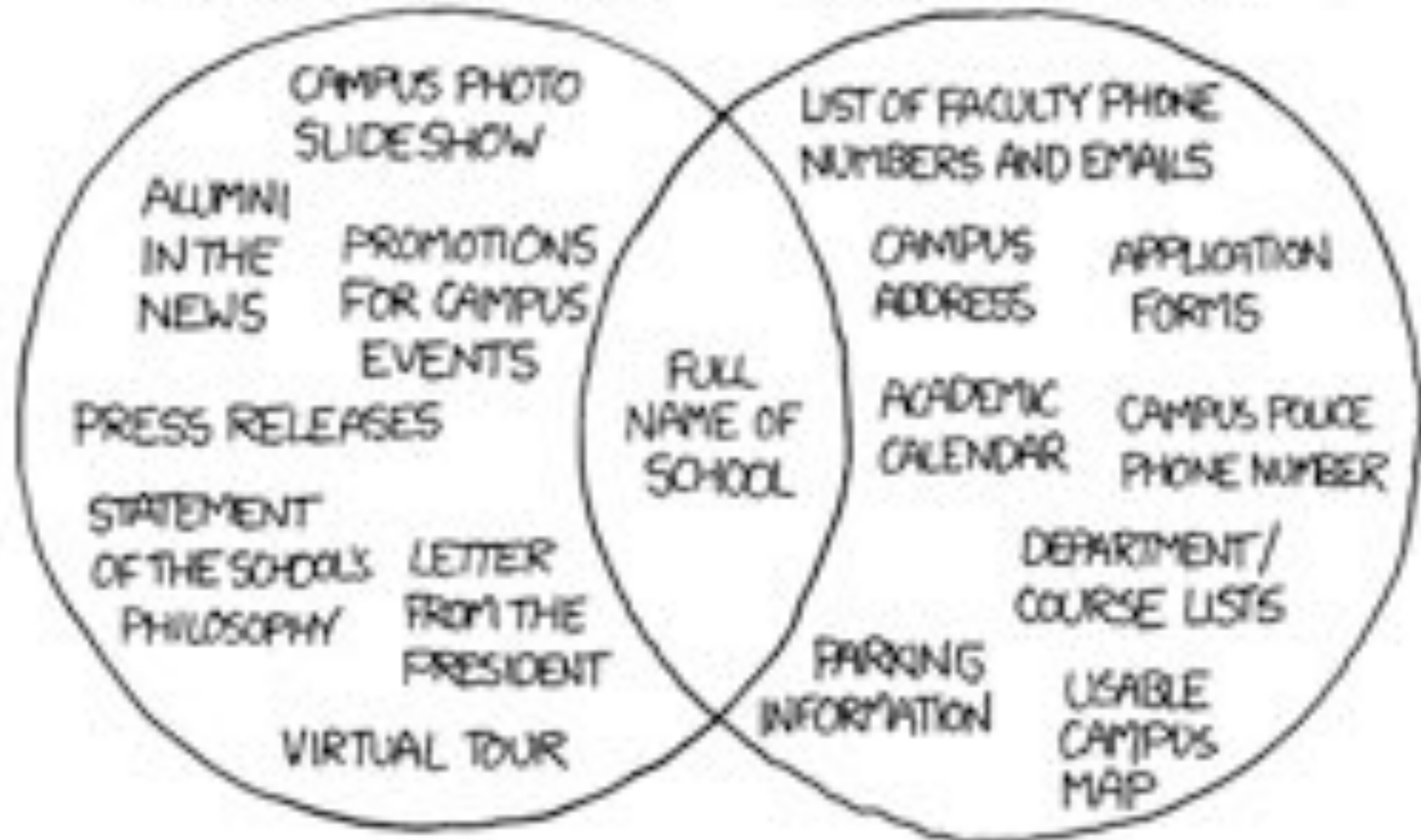
What works well?
What could be improved?

Think about both visual design (color, layout, etc) but also usefulness/usability (e.g., who are the intended users, what information is presented for them?)



THINGS ON THE FRONT PAGE
OF A UNIVERSITY WEBSITE

THINGS PEOPLE GO TO
THE SITE LOOKING FOR



<https://xkcd.com/773>

INTERLUDE
Course Admin

Your Teaching Team

Lecturers



Arvind
Satyanarayan



Daniel
Jackson



Lyel Resner
(Guest Lecturer)

Graduate TAs



Isabella
Pedraza Pineros



Adam
Janicki



Grace
Huang



Zachary
Johnson



Ashley
Granquist

Undergraduate TAs



Abutalib (Barish)
Namazov



An Bo Chen



Elisa Jacobo Arill



Fabrizio
Orderique

Course Logistics

Schedule

Lectures: MW230-4, *required*

Recitations: Thursdays, *recommended*

Office Hours: throughout the week

Website

<http://61040-fa23.github.io>



Discourse Forum

<http://61040.csail.mit.edu>

Q&A, discussions about class material, design ideas & critiques



Class Contributions (10%)

Constructive ways that benefit your classmates (e.g., blog posts, critiques, forum Q&A, etc.)

Team Project (25%)

Identify a problem, design and implement an app to address it.

Preps (5%)

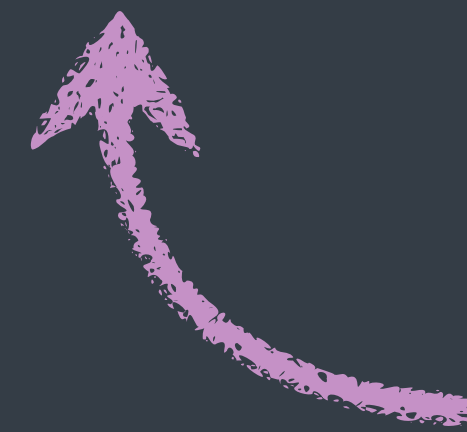
Short weekly exercises to help you prepare for recitation or lecture. Graded as *check-offs*.

Individual Assignments (60%)

Design and implement your own (small, scoped) social media app

END INTERLUDE
Course Admin

This is a class about software *design*

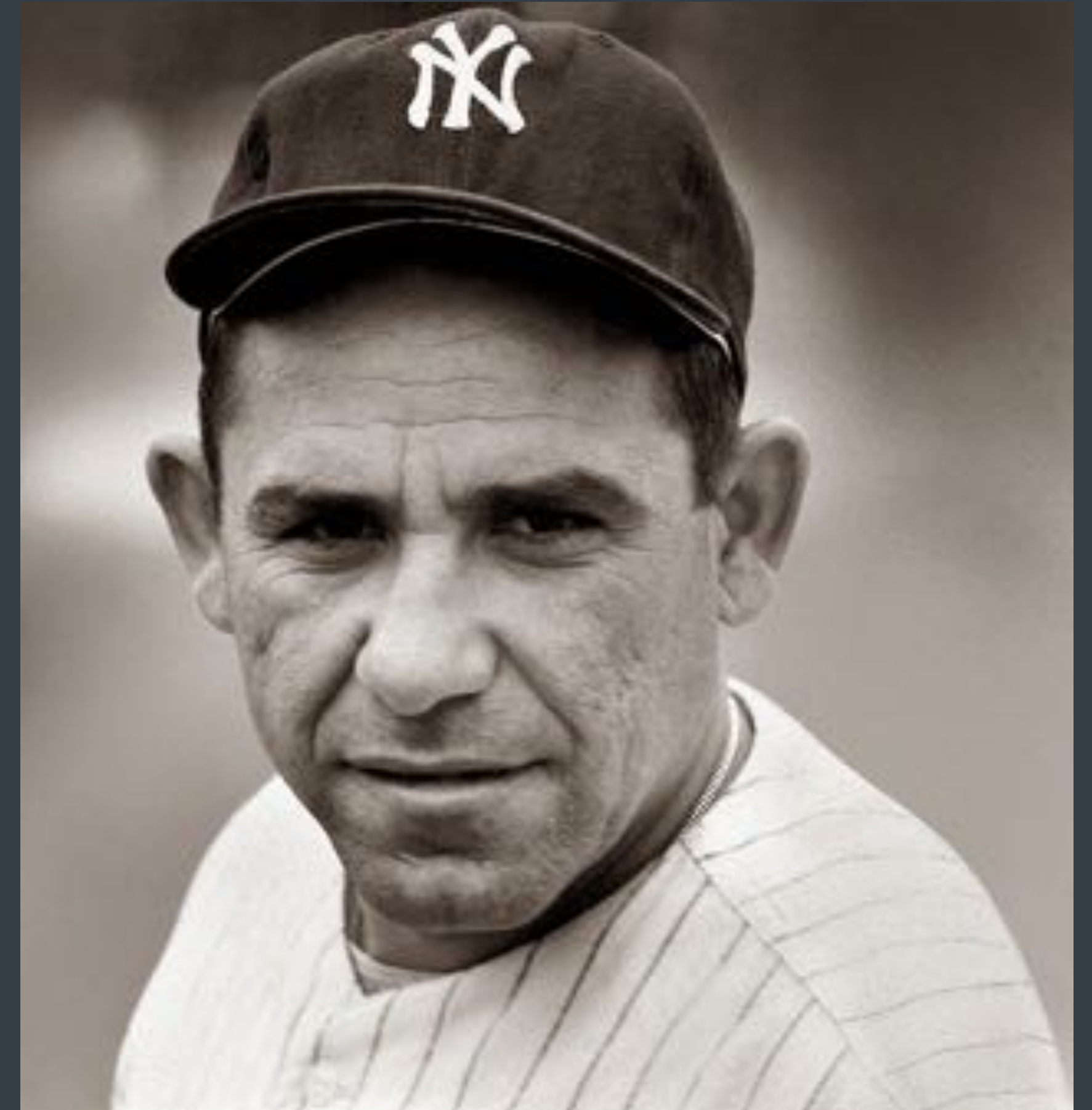


STEP ONE

Identifying a
problem worth solving

*"You can observe a lot by
just watching"*

— Yogi Berra







u/whatthesamm, posted to r/DesirePath on Sept. 22, 2019.



User experience

Design



Sarah Nicholas

@SarahNicholas



This sign knows it has lost.



8:06 AM · Jun 6, 2021 · Twitter for Android

709 Retweets 217 Quote Tweets 4,896 Likes

What do you look for?

Look for *workarounds* and *hacks*

"Errors" are goldmines

Pay attention to *artifacts*

05:39

GUAM

09:39

HONOLULU

5:39

ASH D.C.

19:39

GMT / ZULU



EMERGENCY ALERTS



Emergency Alert

BALLISTIC MISSILE THREAT INBOUND TO HAWAII. SEEK IMMEDIATE SHELTER. THIS IS NOT A DRILL.

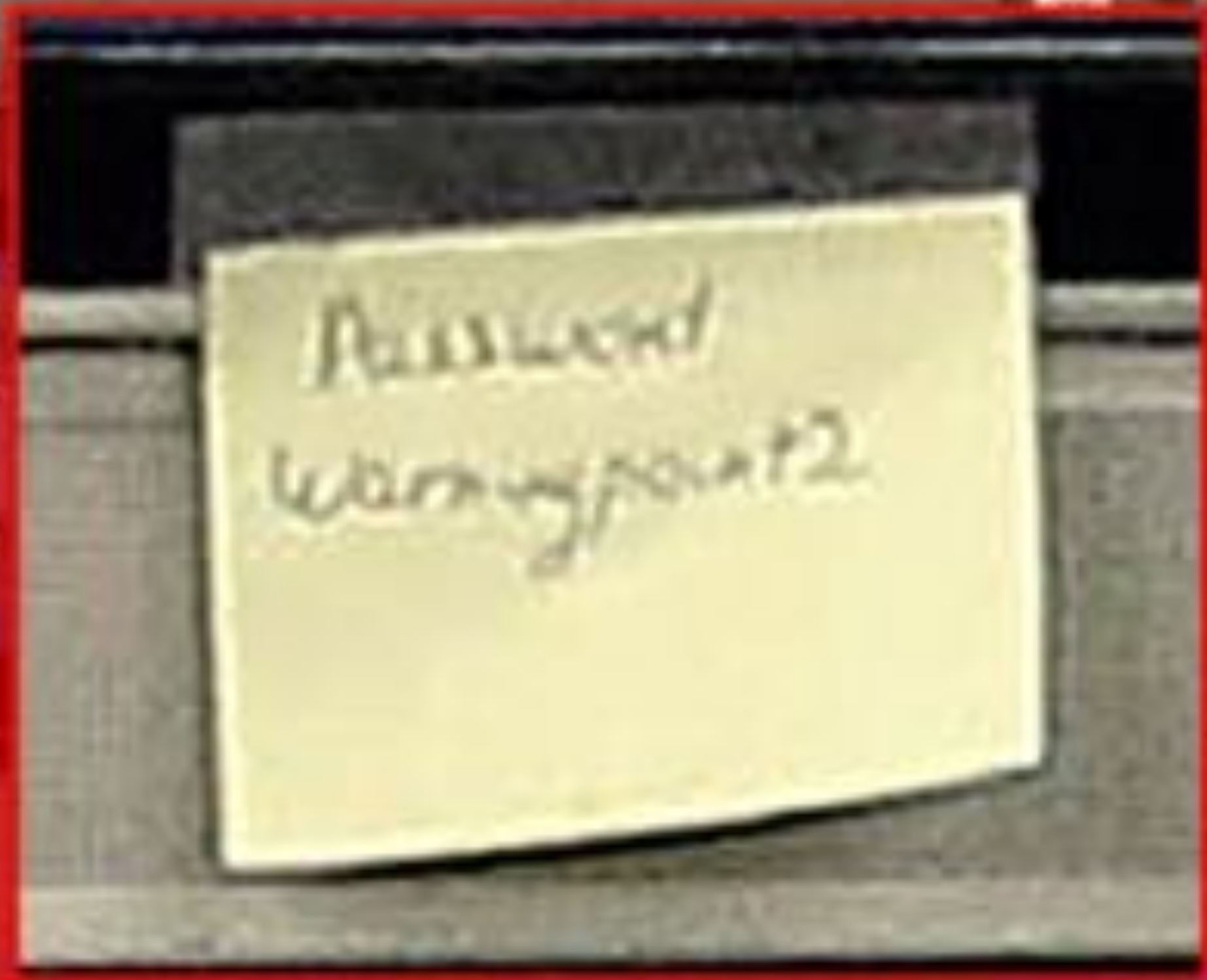
Settings

05:39
GUAM

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HONOLULU

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GMT / ZULU

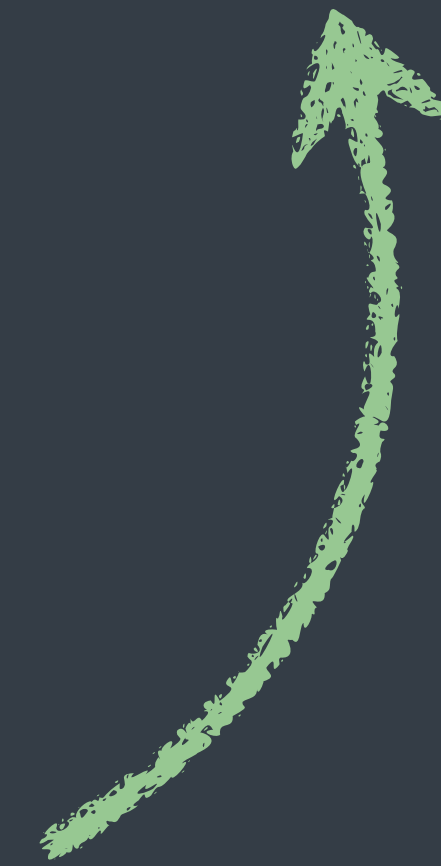




The What

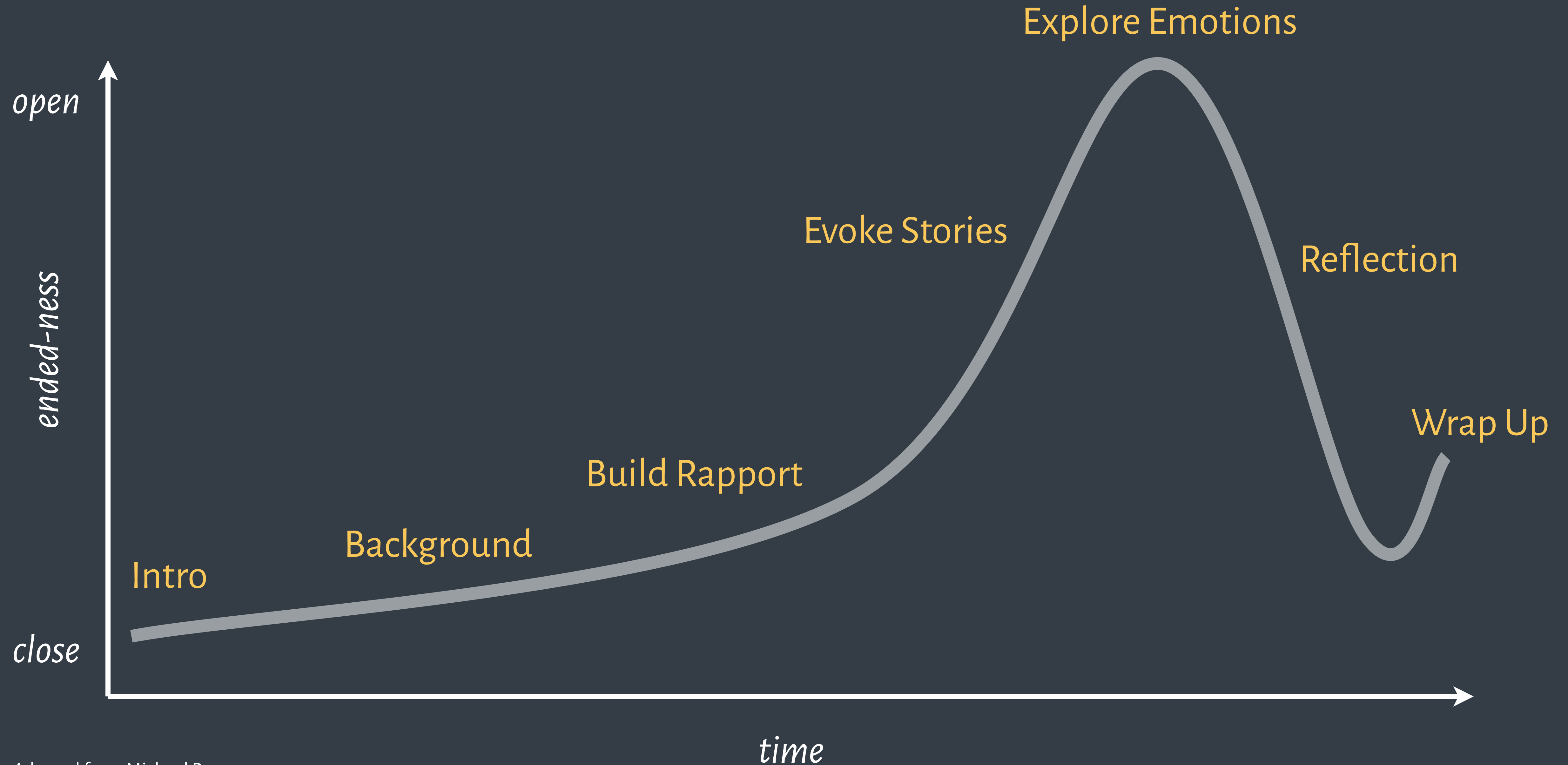


From Observations to Interviews

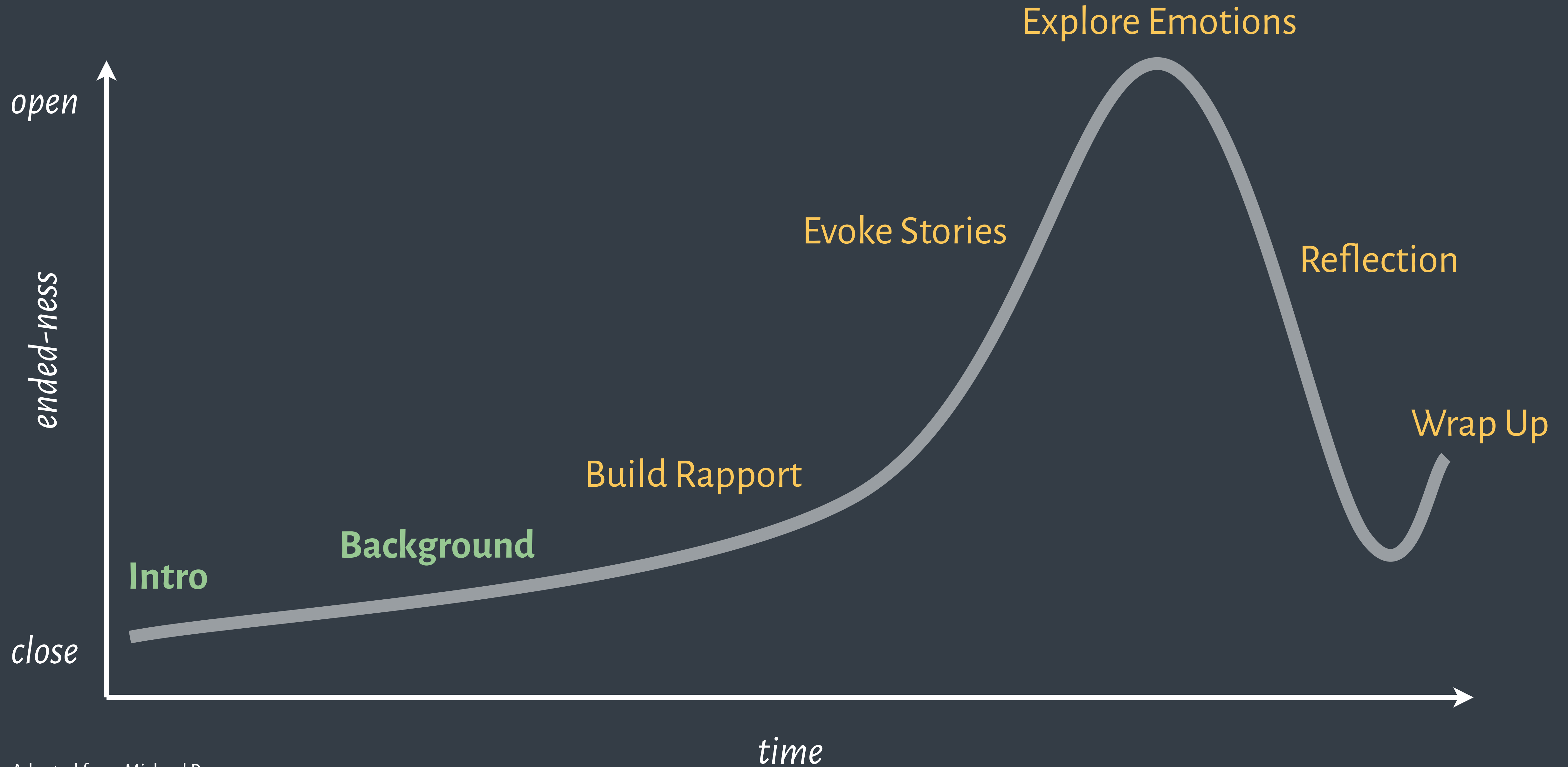


The Why

Interviews



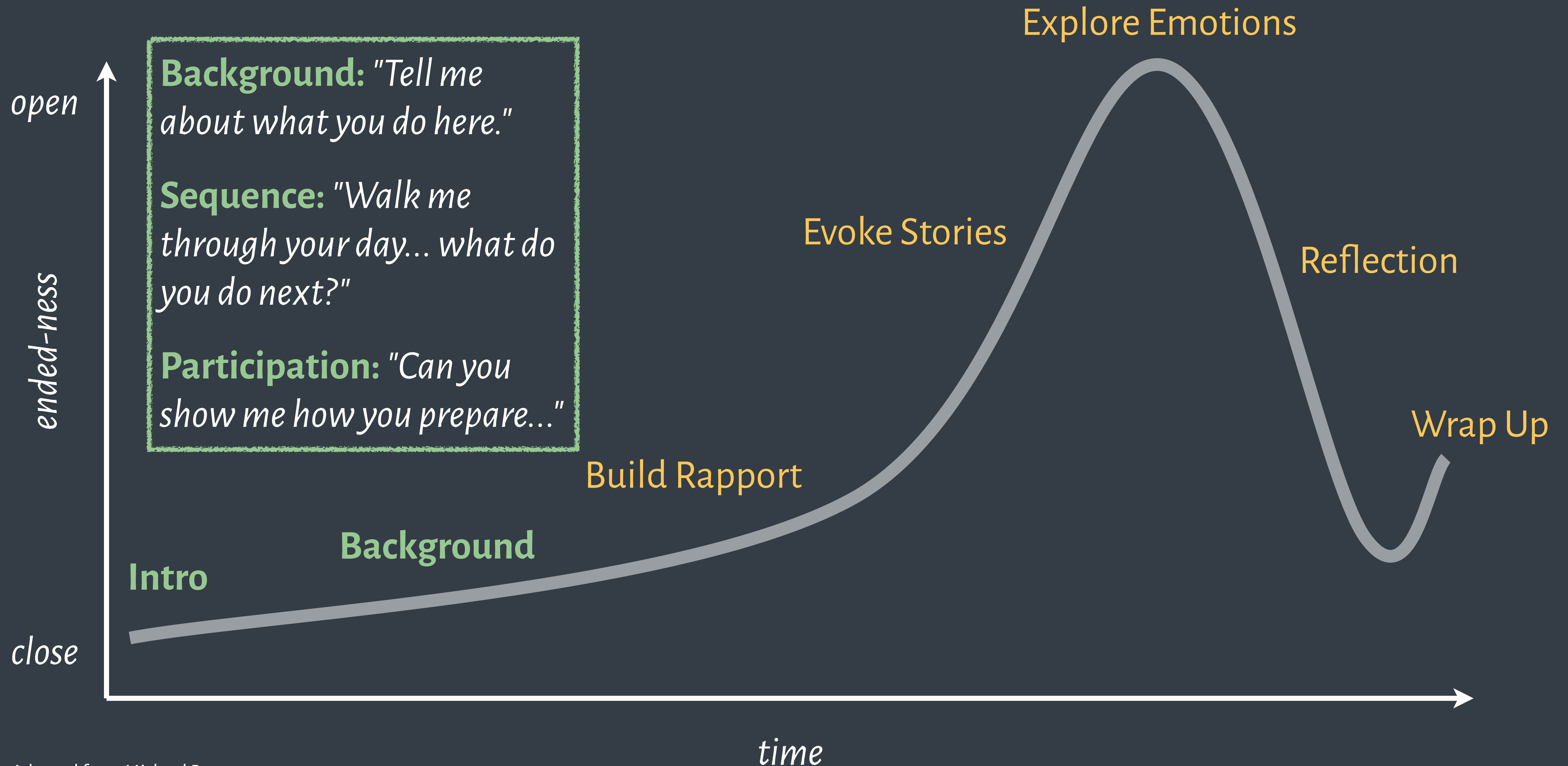
Interviews



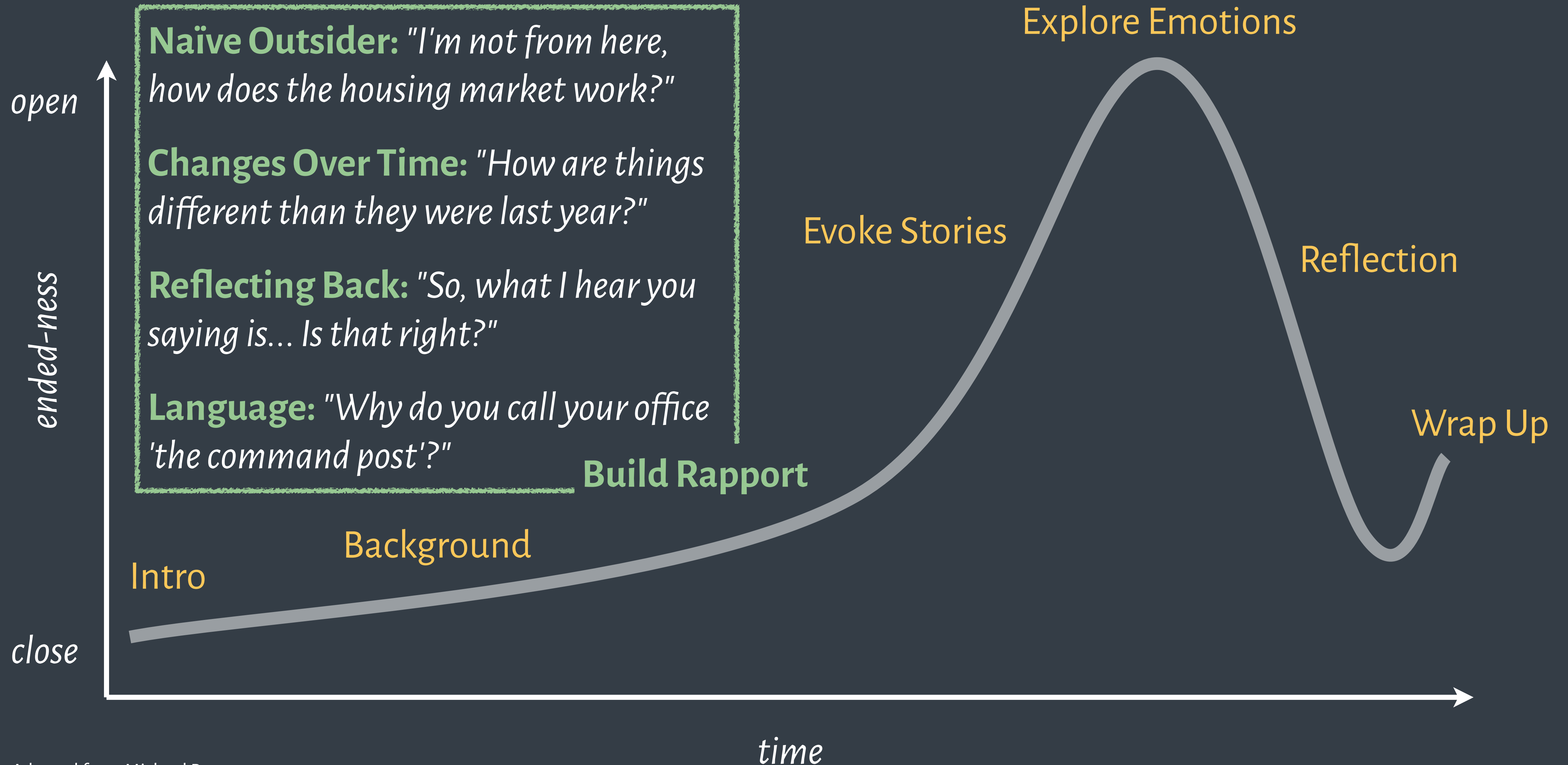




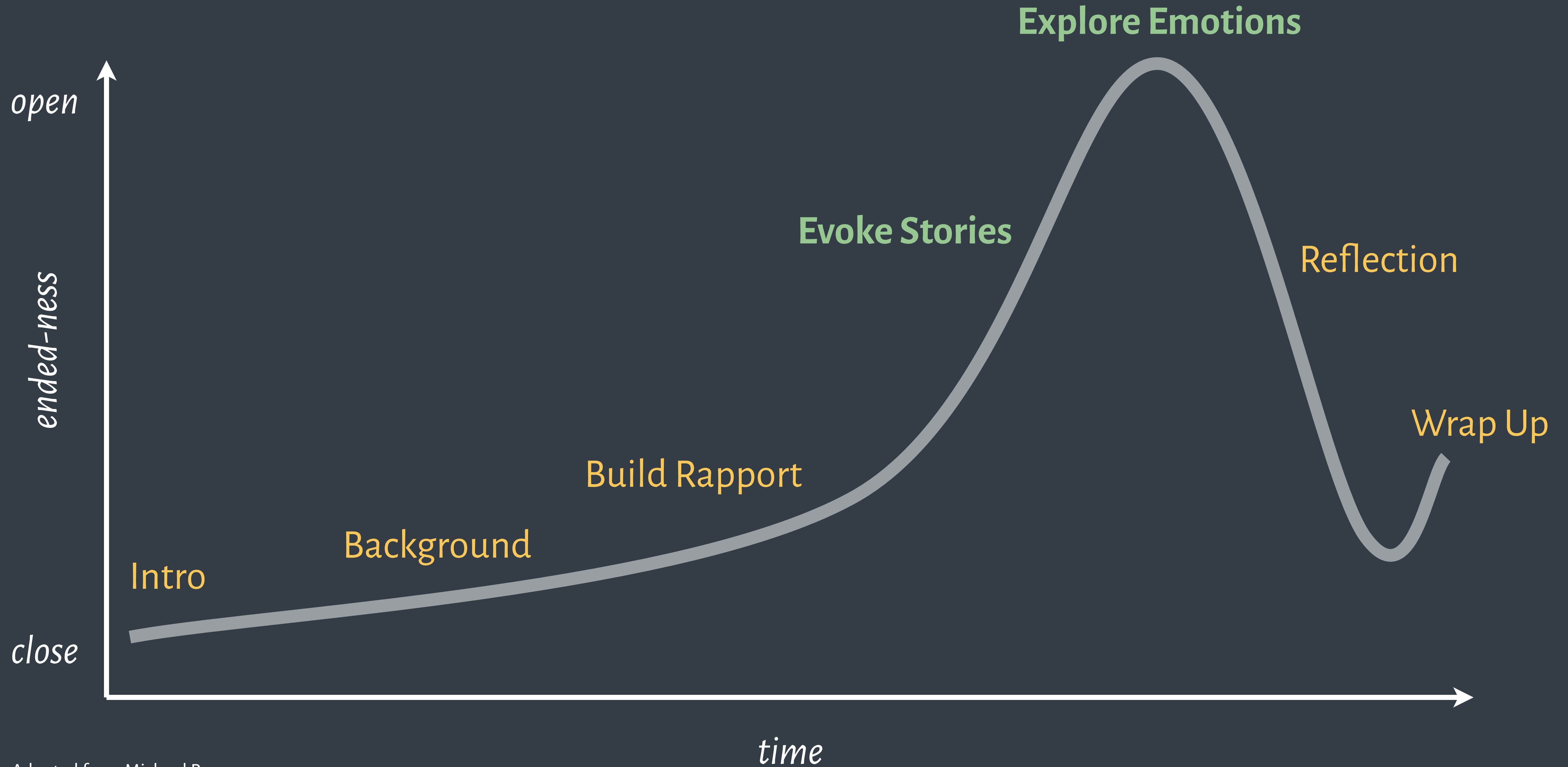
Interviews



Interviews

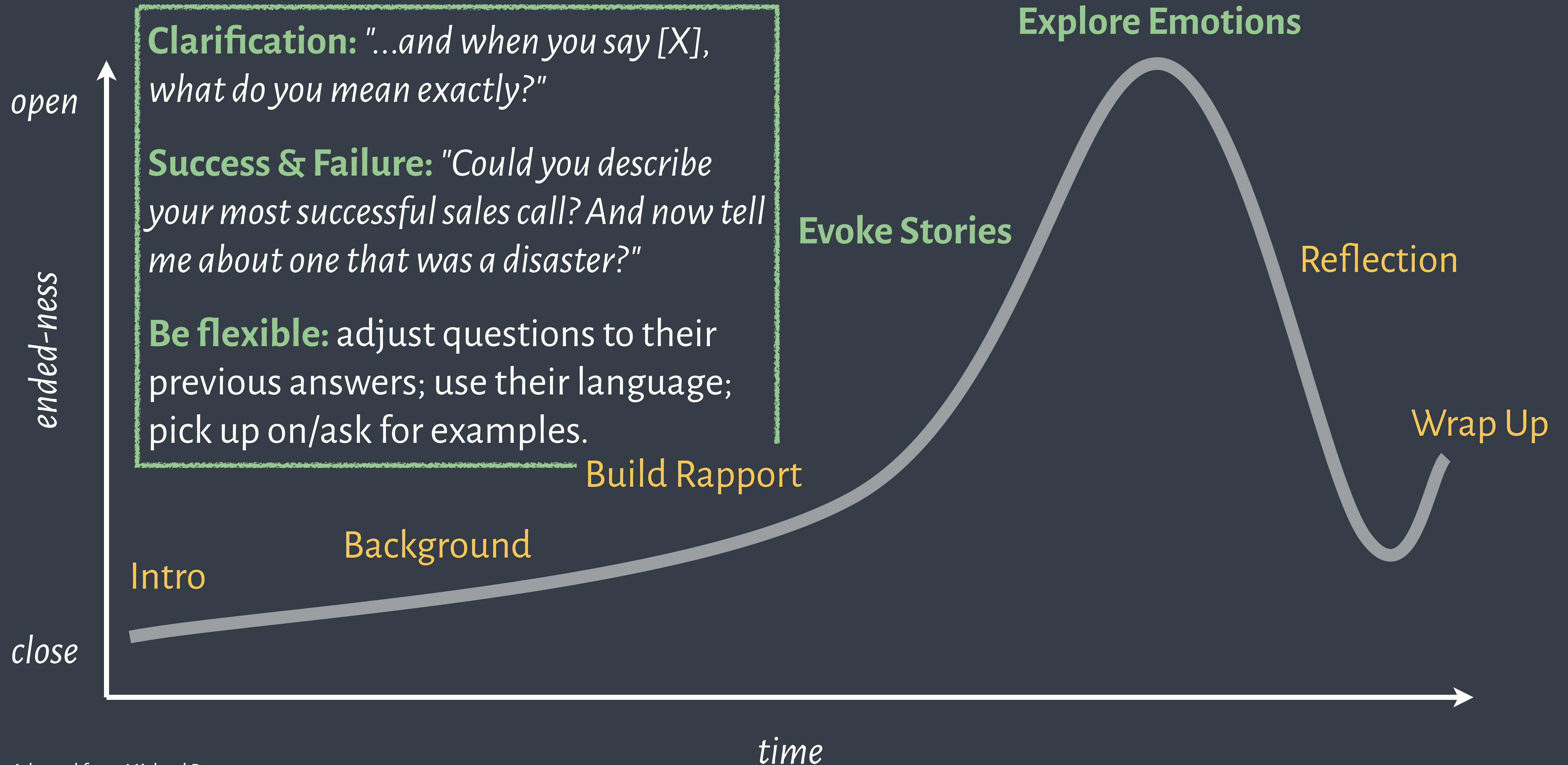


Interviews



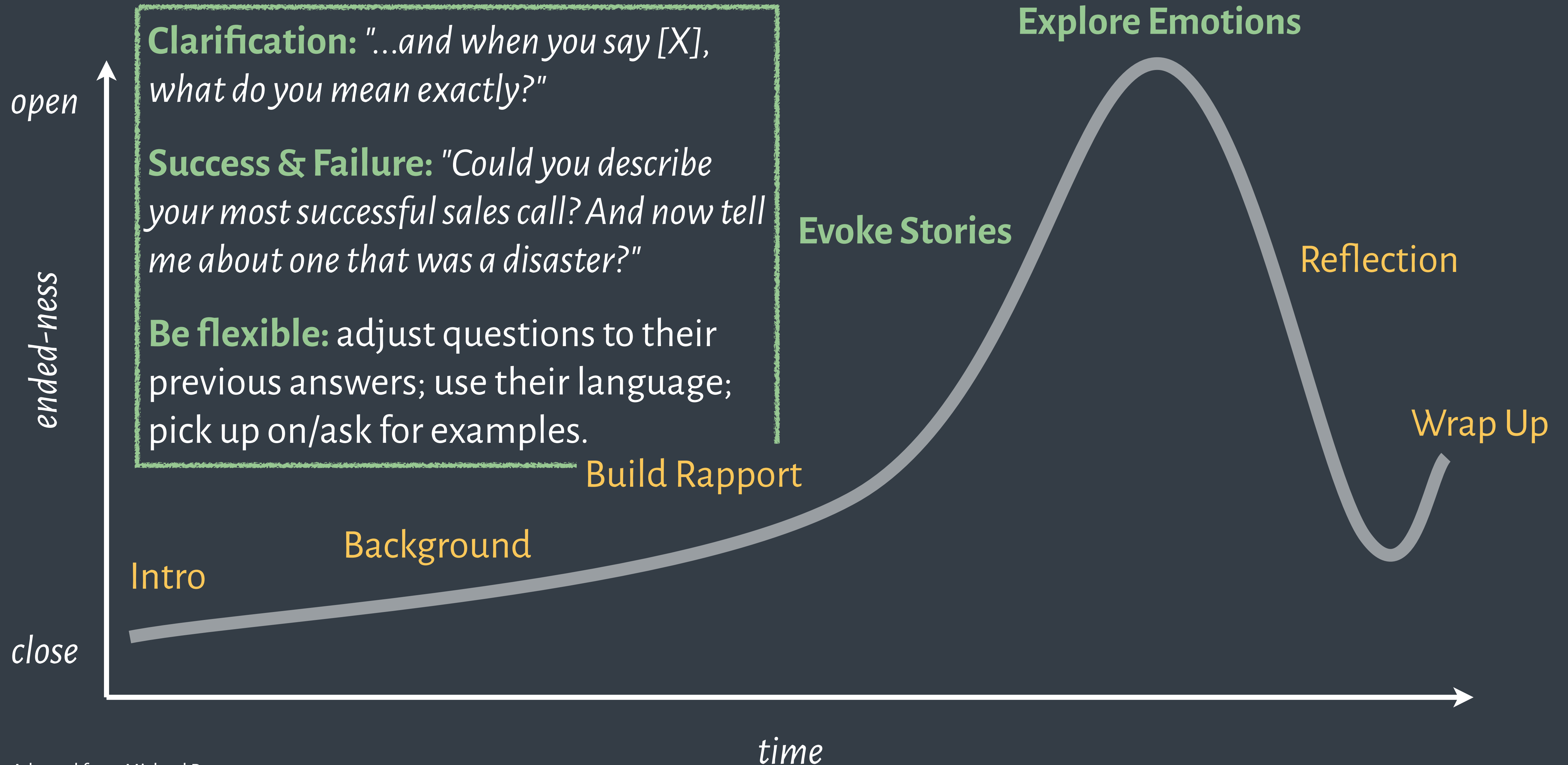


Interviews

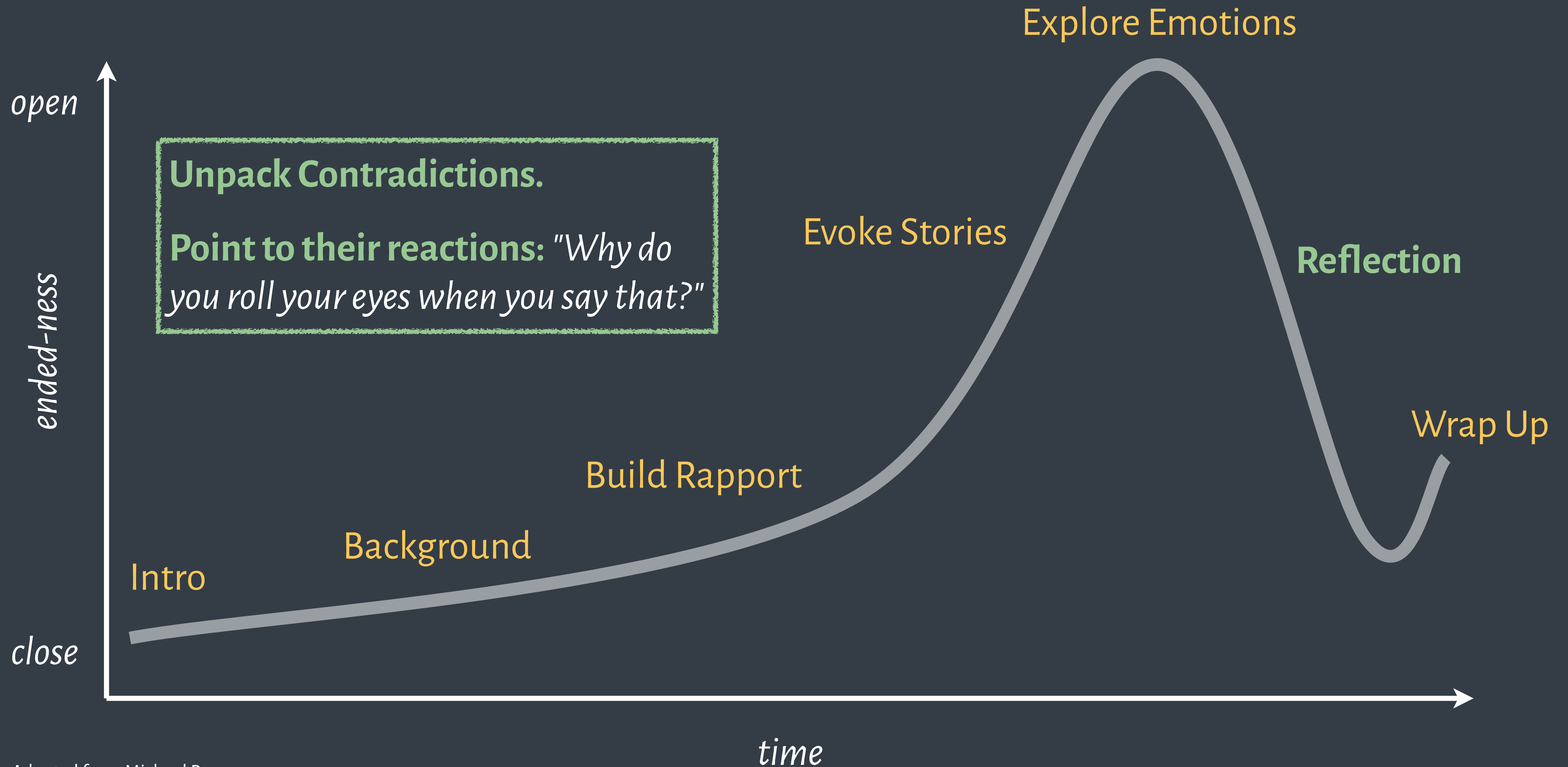




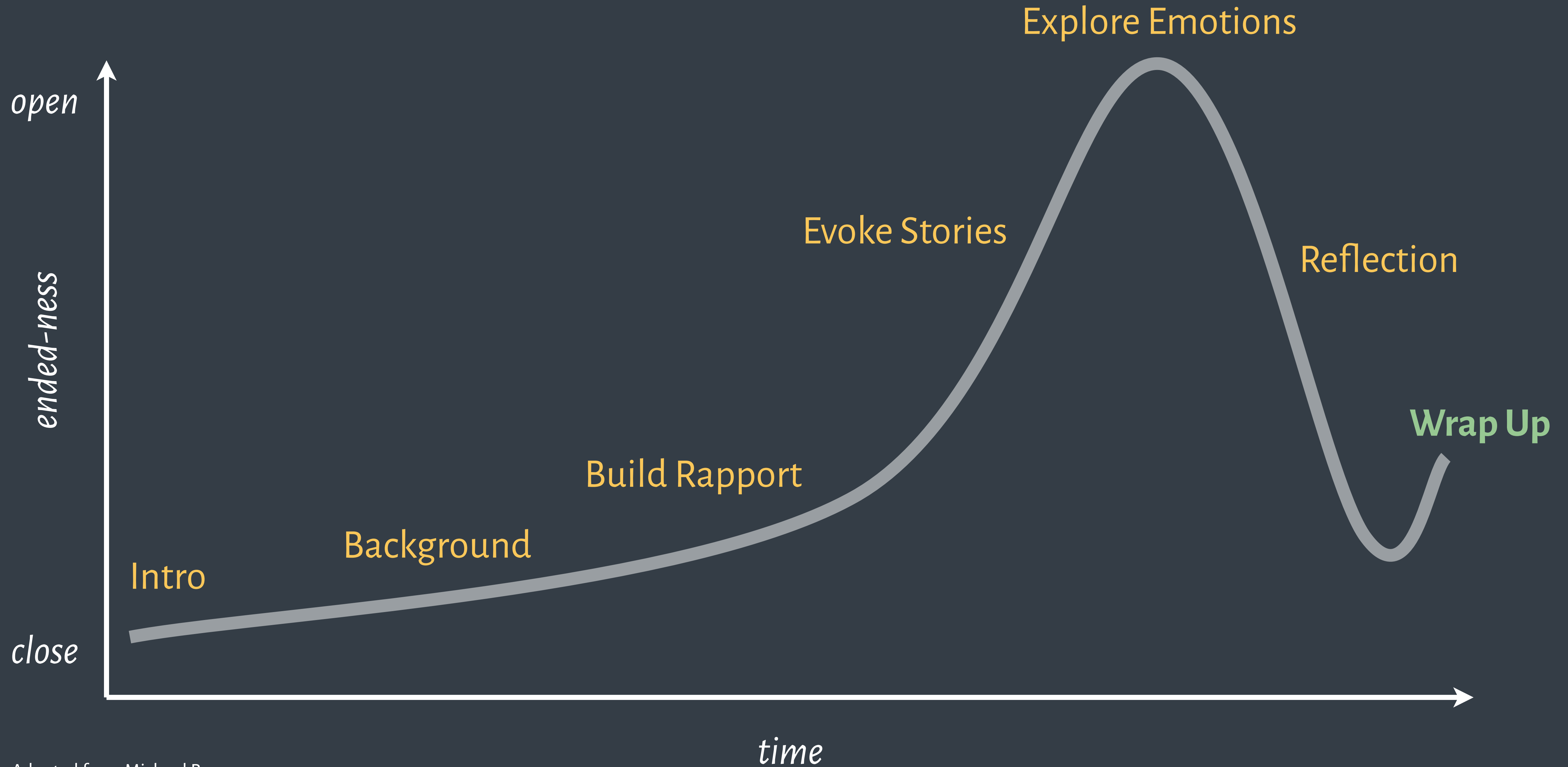
Interviews



Interviews



Interviews







(a little bit of)

Silence is golden

(a little bit of)

Silence is *golden*

Don't...

- ✗ **Suggest Answers:** trust the question, ask it and stop talking.
- ✗ **Use Binary or Absolute Scales:** prevent follow-ups.
- ✗ **Pose Hypotheticals:** we want real stories, not something generic they made up.
- ✗ *"Tell me a story about yourself"*

Analyzing Interview Results

Goals

You can explain **why** people do **unusual things**.

Develop your **point of view** as a designer.

Define the **scope** of your project

Process

Look for **surprises, tensions**, and **contradictions** in what people said.

Reflect on the implications for your project.

Summary

Need finding helps us ground our design in **real (not imagined) user needs**.

Observation is a good way to **uncover the "what"**: workarounds, hacks, errors that suggest an opportunity for a design intervention.

Interviews help us **connect through to the "why"**: people make sense to themselves, and it's our job to understand how to square the contradictions/tensions.

Key to interview success: **build rapport** + be willing to **veer off script** and follow-up surprising/unexpected threads.