

Learners as Agents of Data Integration and Transfer

Helen L. Chen, Ph.D.

Stanford University, @helenlchen, hlchen@Stanford.edu

PESC Fall 2018 Data Summit

October 17, 2018, San Francisco



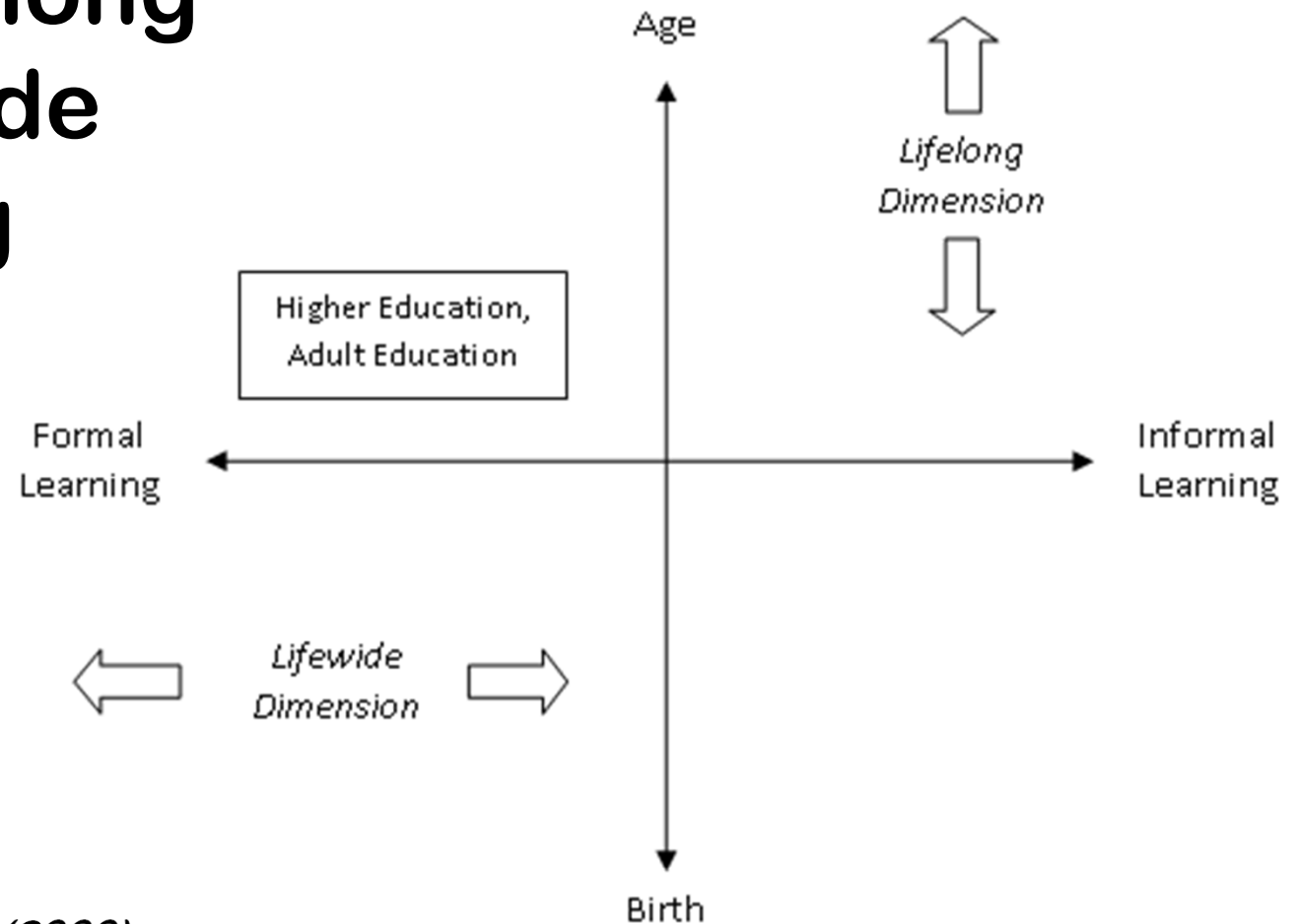
“Nontraditional” is the New Traditional

National Center for Education Statistics (2018)



- 1 in 5 is at least 30 years old
- About half are financially independent from their parents
- 1 in 4 is caring for a child
- 47 percent go to school part time at some point
- A quarter take a year off before starting school
- 2 out of 5 attend a two-year community college
- 44 percent have parents who never completed a bachelor's degree

Defining Lifelong and Lifewide Learning



Chen (2009); Skolverket (2000)

agents of integration

**individuals who are actively
working to perceive the
connections they make and
convey them effectively to others**

**Rebecca S. Nowacek, *Agents of Integration: Understanding
Transfer as a Rhetorical Act* (2011)**

TAKE A CLASS

EXPERIENCE STUDENT STORIES

TRY OUR METHODS

MAKE A SPACE FOR INNOVATION

THE D.SCHOOL
CLASS
EXPERIENCE

Watch a 3-minute
introduction to our
Bootcamp course

D.MANIFESTO

all you need to know - on a
napkin

OUR INTENT: CREATE A
DESIGN S
prepare FUTURE
breakthrough thi
use DESIGN THIN
inspire multidisci
foster RADICAL CO
between students, fa
tackle BIG PROJE
prototyping to discover

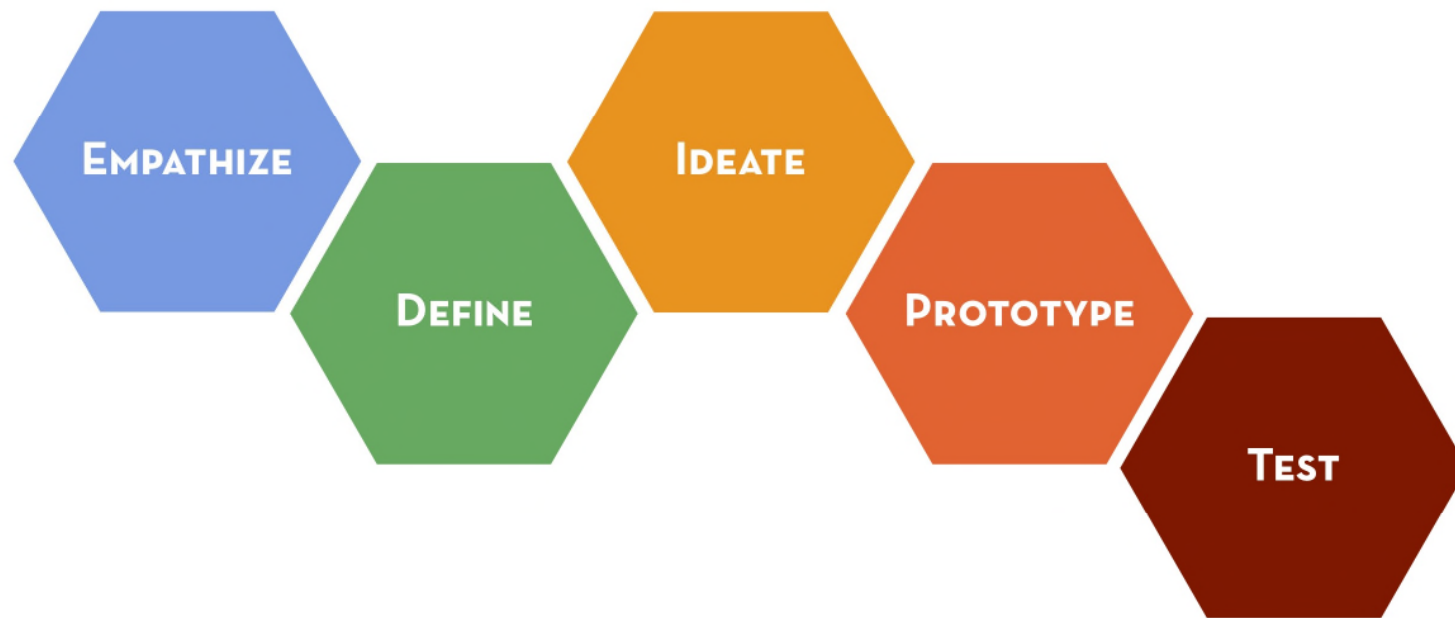
our point of view

learning experiences

the latest

about us

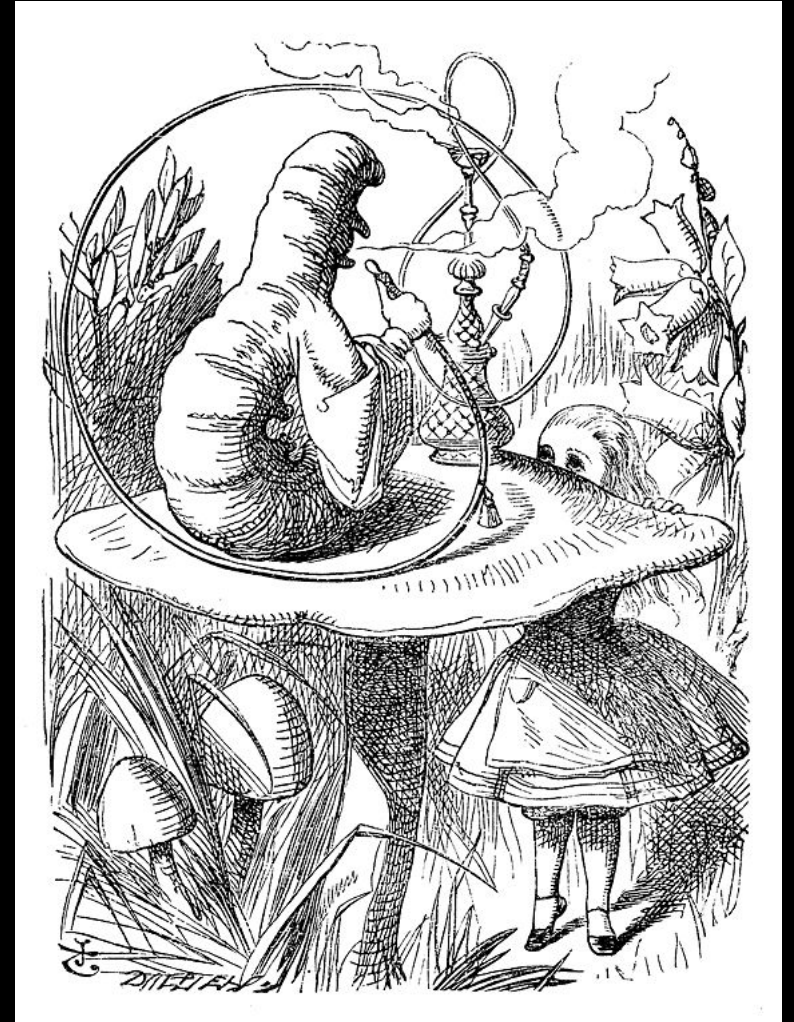
DESIGN IS A PROCESS...



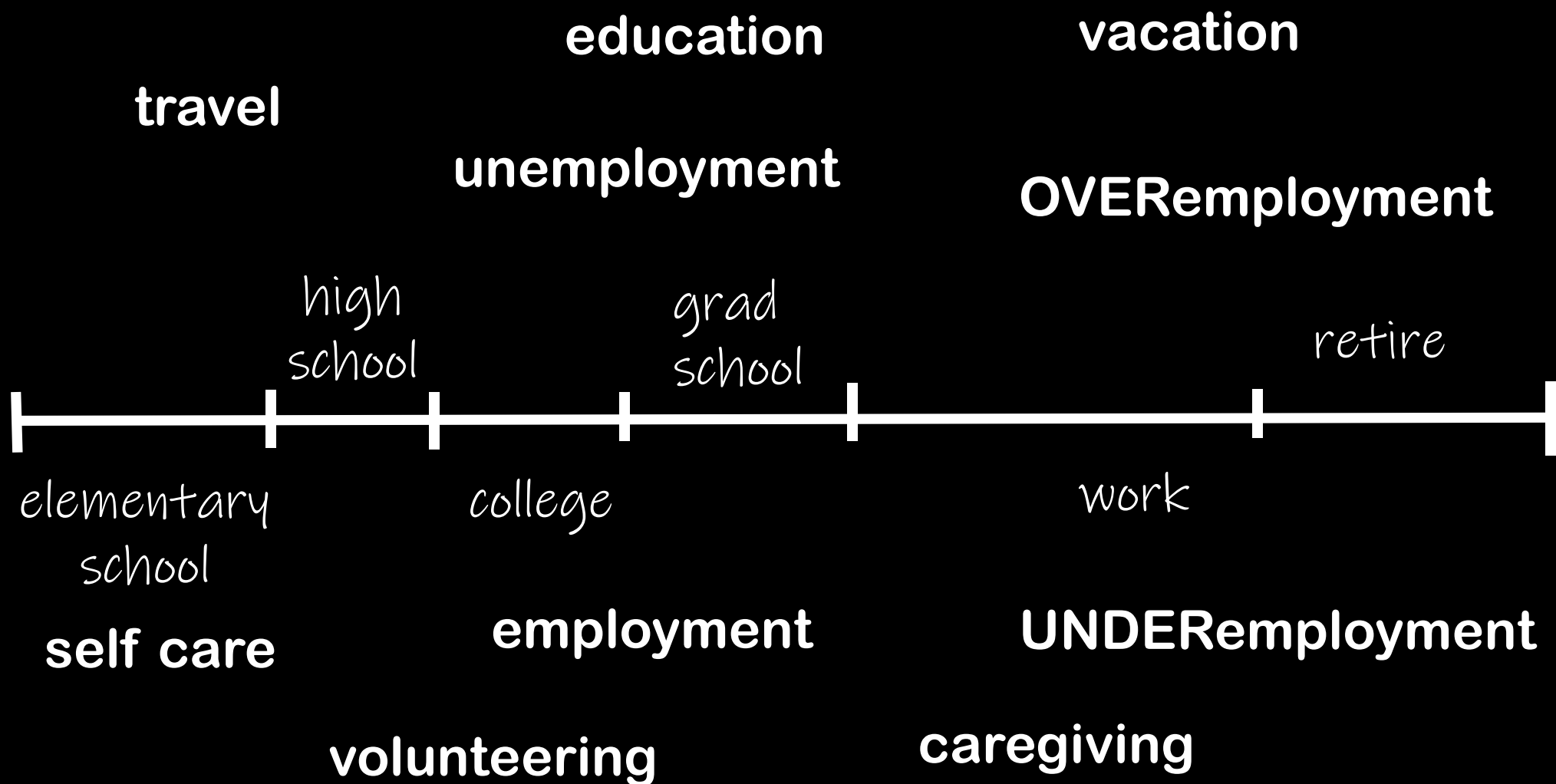
am•bi•gu•i•ty

/,æmbɪ'ɡjuːəti/

Ambiguity comes from the Latin *ambiguus*, which was formed by combining *ambi-* (meaning "both") and *agree* ("to drive")



**THE FUTURE HAS
NEVER BEEN MORE
UNCERTAIN**



Hasso v. Institute of Design at Stanford University (2018)

LEARNING & LIVING AT STANFORD

An exploration of undergraduate experiences in the future



Anatomy of a Skill-Print

As you analyze a candidate's skill print, make sure to explore the following key features. They are useful indicators of potential, and excellent starting points for your immersion interviews.

A bright spot indicates a "peak," as in a topographical map. This indicates significant depth of experience and capability within a narrow area. Examples could include advanced financial or statistical modeling in the top 5% of the performers in a given field (like macroeconomics), or evidence of significant accomplishment in the arts as assessed by influence on other artists. Rare to see such a bright peak in someone early in their career, but not impossible.

This hint of brown / yellow within a clear area of green typically indicates a newly developing capability. Once developed, the color will appear more uniform. This is an excellent area to investigate more closely. Look at the types of activities that are contributing to this spot—this may indicate how the candidate seeks training or new experiences to learn skills or gain expertise in adjacent fields that help them think more laterally.

This boundary area is an important feature. It is quite sharp, and the contrasting colors indicate an unusual juxtaposition of abilities. This might be extremely valuable to your organization, as it tends to be rarer (versus the more expected pairing of the blue / green adjacency, which may indicate a competency cluster in related domains, like Social Inquiry and Moral & Ethical Reasoning). In this case the red/green border shows that this candidate is skilled in both Formal & Quantitative Reasoning, and possesses significant Creative Confidence.



This enlargement shows the tessellated skin of the print at a cellular level. Each cell is a specific instance of the candidate's skill manifesting in an observable context—through a project undertaken, a paper that was published, something they built, a review given by a prior supervisor, etc. In typical hiring scenarios, the candidate has determined which cells are available to a recruiter / interviewer to be able to double click on.

As a unique, living artifact of competencies, the skill-print became an invaluable tool for employers to assess the potential of a candidate.

Stanford 2025

THE CHRONICLE OF HIGHER EDUCATION

STUDENTS

    |  Comments (64)

Making Transcripts More Than ‘a Record of Everything the Student Has Forgotten’

By Katherine Mangan | JULY 15, 2015

AUSTIN, TEX.

Stanford University's registrar, Thomas C. Black, isn't surprised that fewer employers are asking for college transcripts these days.

The old-school version, with its list of abbreviated course titles, credit hours, and grades, might as well broadcast, "Here is a record of everything the student has forgotten," says Mr. Black, who is also associate vice provost for student affairs.

"There's a [clamor](#)," he says, "for something more meaningful."

That "something" is a form of extended transcript or digital portfolio that captures more of what students are learning both inside and outside the classroom.

There could be links for study abroad and internships, robotics competitions and volunteer activities. An electronic portfolio could include examples of creative writing or artwork, or an engineering prototype a student developed.

VERIFIED STANFORD OFFICIAL TRANSCRIPT IN PDF FORMAT ONLY

STANFORD UNIVERSITY
OFFICE OF THE UNIVERSITY REGISTRAR
STANFORD, CA 94305-6032

Print Date: 11/19/2013

Academic Program

Program: Cancer Biology
09/24/2007
Active in Program

Terminal Graduate Registrant: 09/25/2011

Beginning of Academic Record

Course	Title	Attempted	Enrolled	Grade
CBIO 241	MOLECULAR, CELLULAR, AND GENETIC BASIS OF CANCER	5.00	5.00	A+
CBIO 280	CANCER BIOLOGY JOURNAL CLUB	1.00	1.00	S
GENE 209	ADVANCED GENETICS	4.00	4.00	B-

2007-2008 Autumn

Course	Title	Attempted	Enrolled	Grade
CBIO 241	MOLECULAR, CELLULAR, AND GENETIC BASIS OF CANCER	5.00	5.00	A+
CBIO 280	CANCER BIOLOGY JOURNAL CLUB	1.00	1.00	S
GENE 209	ADVANCED GENETICS	4.00	4.00	B-

2007-2008 Winter

Course	Title	Attempted	Enrolled	Grade
CBIO 241	MOLECULAR, CELLULAR, AND GENETIC BASIS OF CANCER	5.00	5.00	A+
CBIO 280	CANCER BIOLOGY JOURNAL CLUB	1.00	1.00	S
GENE 209	ADVANCED GENETICS	4.00	4.00	B-

2007-2008 Spring

Course	Title	Attempted	Enrolled	Grade
CBIO 241	MOLECULAR, CELLULAR, AND GENETIC BASIS OF CANCER	5.00	5.00	A+
CBIO 280	CANCER BIOLOGY JOURNAL CLUB	1.00	1.00	S
GENE 209	ADVANCED GENETICS	4.00	4.00	B-

2007-2008 Summer

Course	Title	Attempted	Enrolled	Grade
CBIO 241	MOLECULAR, CELLULAR, AND GENETIC BASIS OF CANCER	5.00	5.00	A+
CBIO 280	CANCER BIOLOGY JOURNAL CLUB	1.00	1.00	S
GENE 209	ADVANCED GENETICS	4.00	4.00	B-

2008-2009 Autumn

Course	Title	Attempted	Enrolled	Grade
CBIO 241	MOLECULAR, CELLULAR, AND GENETIC BASIS OF CANCER	5.00	5.00	A+
CBIO 280	CANCER BIOLOGY JOURNAL CLUB	1.00	1.00	S
GENE 209	ADVANCED GENETICS	4.00	4.00	B-

2008-2009 Winter

Course	Title	Attempted	Enrolled	Grade
CBIO 241	MOLECULAR, CELLULAR, AND GENETIC BASIS OF CANCER	5.00	5.00	A+
CBIO 280	CANCER BIOLOGY JOURNAL CLUB	1.00	1.00	S
GENE 209	ADVANCED GENETICS	4.00	4.00	B-

2008-2009 Spring

Course	Title	Attempted	Enrolled	Grade
CBIO 241	MOLECULAR, CELLULAR, AND GENETIC BASIS OF CANCER	5.00	5.00	A+
CBIO 280	CANCER BIOLOGY JOURNAL CLUB	1.00	1.00	S
GENE 209	ADVANCED GENETICS	4.00	4.00	B-

Page 1 of 3
[Key to Transcript](#)

COPY OF CERTIFIED PDF

KEY TO TRANSCRIPT ON FINAL PAGE

Enhanced Transcript

course descriptions

faculty profiles

eDissertations & theses

honors papers

ePortfolio

study abroad

papers & research

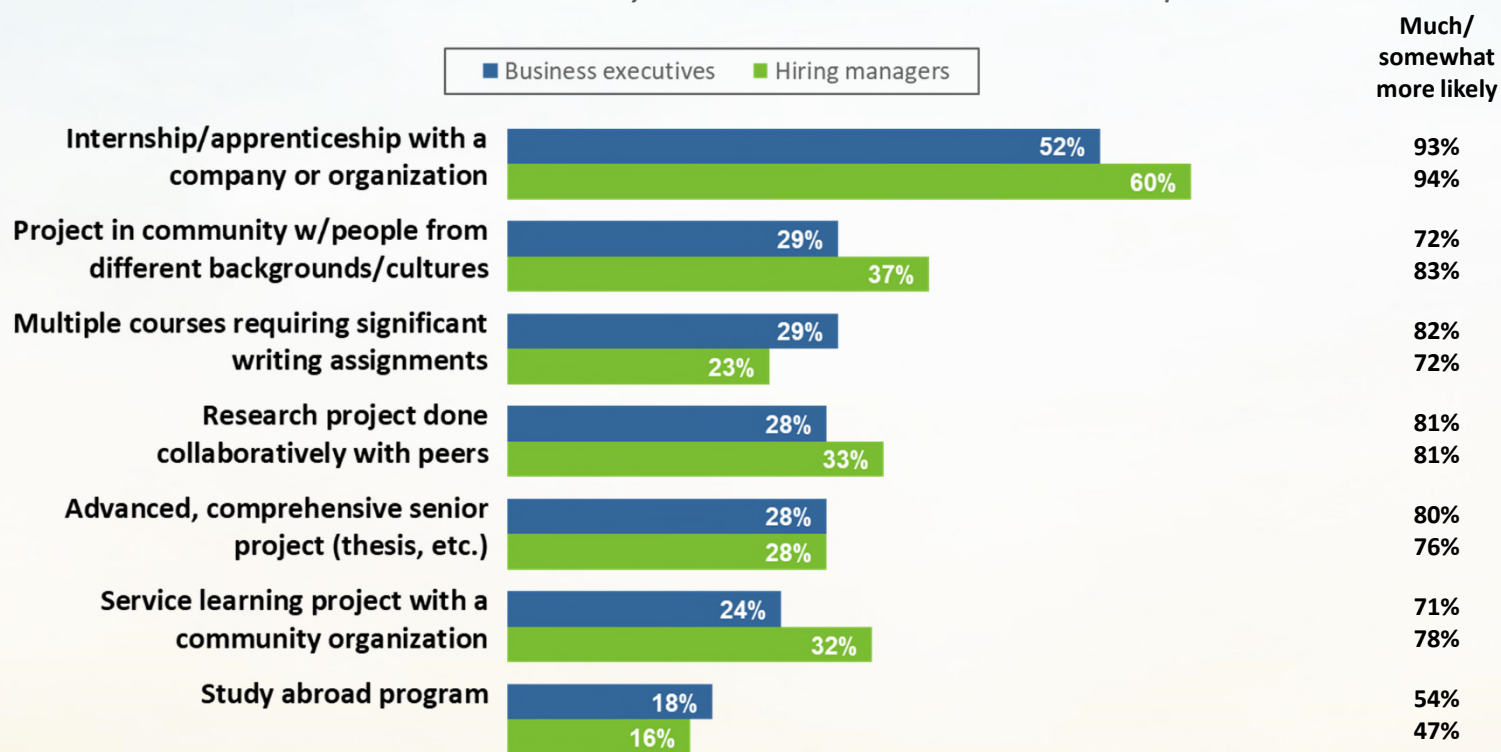
service & internships

certificates & badges



Applied and project-based learning experiences, particularly internships or apprentice experiences, give recent college graduates an edge with both employer audiences.

Would be MUCH More Likely to Hire Recent Grad with this Experience



Key Attributes Employers Seek on a Resume

Problem-solving skills -82.9%
Ability to work in a team -82.9%
Communication skills (written) – 80.3%
Leadership – 72.6%
Strong work ethic – 68.4%
Analytical/quantitative skills – 67.5%
Communication skills (verbal) – 64.1%
Initiative – 60.7%
Detail-oriented – 59.8%
Flexibility/adaptability – 54.7%
Technical skills – 48.7%
Interpersonal skills (relates well to others) – 48.7%







National Association of Colleges and Employers





Flipping the Transcript: The Scholarship Record

Formal Reasoning






manipulate a system of symbols logically and consistently so as to derive or prove new results of particular interest or utility.

- PHIL 150 : Basic Concepts in Mathematical Logic (PHIL 250) 
- PHIL 151 : First-Order Logic (PHIL 251) 
- PHIL 154 : Modal Logic (PHIL 254) 
- PHIL 166 : Probability: Ten Great Ideas About Chance (PHIL 266, STATS 167, STATS 267) 






solve equations or optimization problems through translation to a standardized formalism.

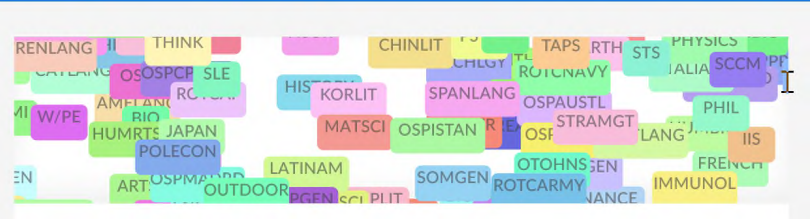
- MATH 51 : Linear Algebra and Differential Calculus of Several Variables 
- PHIL 150 : Basic Concepts in Mathematical Logic (PHIL 250) 
- PHIL 151 : First-Order Logic (PHIL 251) 
- PHIL 154 : Modal Logic (PHIL 254) 

study complex processes or systems using theoretical models to predict their outcomes.

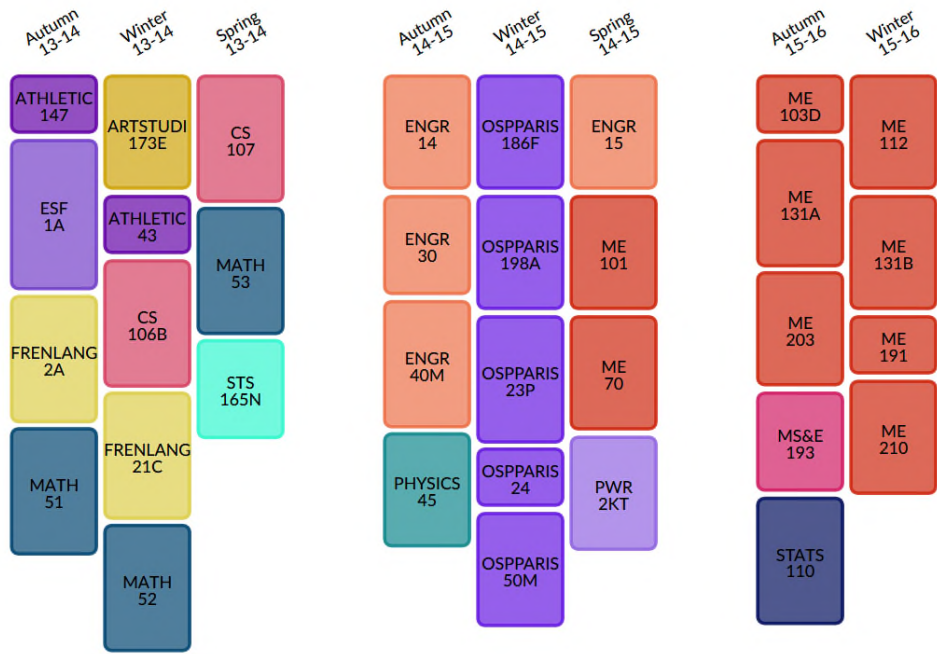
- CS 107 : Computer Organization and Systems 
- PHIL 150 : Basic Concepts in Mathematical Logic (PHIL 250) 
- PHIL 151 : First-Order Logic (PHIL 251) 
- PHIL 154 : Modal Logic (PHIL 254) 
- PHIL 166 : Probability: Ten Great Ideas About Chance (PHIL 266, STATS 167, STATS 267) 

use deductive reasoning correctly through the study of particular examples in an area of interest at the collegiate level.

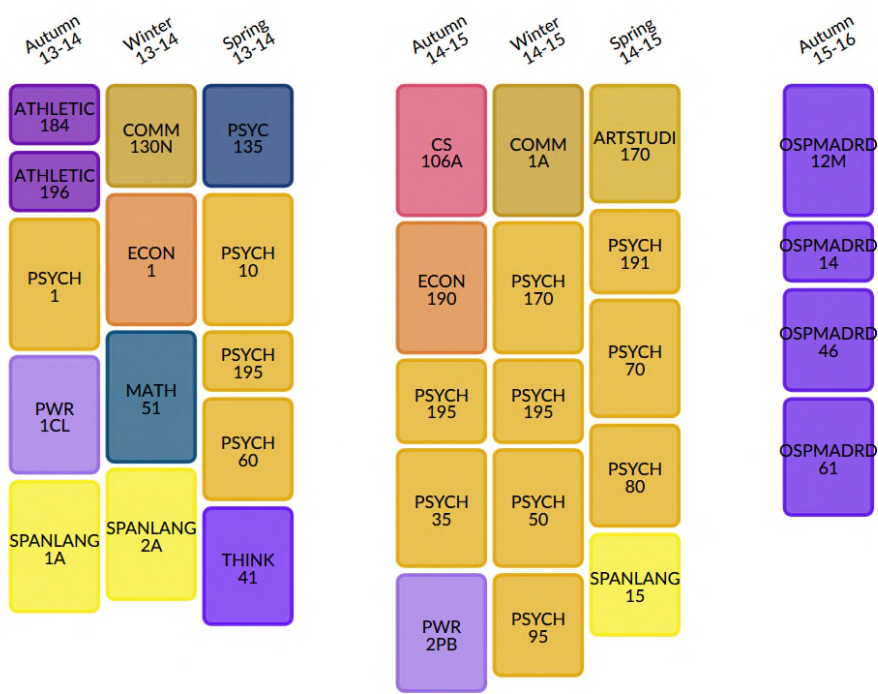
- ECON 50 : Economic Analysis I 
- PHIL 150 : Basic Concepts in Mathematical Logic (PHIL 250) 
- PHIL 151 : First-Order Logic (PHIL 251) 
- PHIL 154 : Modal Logic (PHIL 254) 
- PHIL 166 : Probability: Ten Great Ideas About Chance (PHIL 266, STATS 167, STATS 267) 



MAJOR IN MECHANICAL ENGINEERING



MAJOR IN PSYCHOLOGY





Laine Bruzek Skill Print

My skill set is broad and diverse, and it might seem incongruous at first. Instead, I regard my core skills as complementary colors on the spectrum that inspires my creative, academic, and professional work.

MUSIC + CREATIVE WRITING: SONGWRITING

I love collaborating with other musicians like I did for "Rainfly" which can be found on my portfolio website.

MUSIC

Choirs have fundamentally shaped my work ethic and understanding of the impact of culture and norms. Competing in show choir taught me how individual efficiency and responsibility is crucial to group success.

MUSIC + MANAGEMENT: PERFORMANCE MANAGEMENT

As the Performance Manager for Mixed Company A Cappella, I created choreography and comedy sketches, planned our annual shows, and found unexpected ways to apply the managerial skills learned in my Master's program.

MANAGEMENT SCIENCE

I chose to pursue a Master's in Management Science & Engineering at Stanford because I wanted to add rigorous depth to my passion for business strategy and entrepreneurship.

MANAGEMENT + ENTREPRENEURSHIP: MAYFIELD FELLOWS PROGRAM

Each year, 12 outstanding students are selected to participate in a 9-month entrepreneurship intensive called the Mayfield Fellows Program. After a year as a Fellow in 2015, I was honored to be chosen as the Course Assistant for the following year.

CREATIVE WRITING

Creative writing is one of my strongest skills and favorite art forms. I started writing at 6, was published at 12, and have been dreaming up stories since.

CREATIVE WRITING + FILMMAKING: SCREENWRITING

I mentored other students in writing scripts as a TA for the Visual Writing Arts Intensive at Stanford.

FILMMAKING

Filmmaking is a new and compelling passion of mine. It's a deliciously challenging exercise in manipulating technology to match a storyteller's imagination.

FILMMAKING + DESIGN: MEDIA DESIGN

How we tell stories is just as important as the stories we tell. I've worked as a Media Designer on several projects, and love the potential for experimental media to spark new framings of old ideas.

EXPERIENCE DESIGN

I'm always looking for new ways to apply human-centered design to everything from consumer tech to experiential media to K-12 education.

DESIGN + ENTREPRENEURSHIP: D.SCHOOL

Human-centered design and entrepreneurship come together at the d.school at Stanford, where I've spent 5 years learning to apply design thinking not only to product creation but also to business strategy and logistical execution.

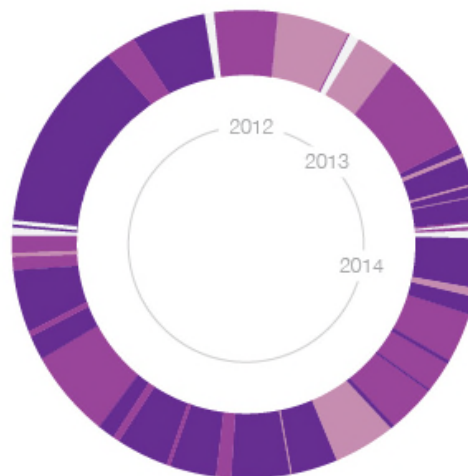
ENTREPRENEURSHIP

The entrepreneurial mindset at Stanford is infectious, and I've been fortunate to learn it from some of Silicon Valley's leading influencers. I love teaching this mindset to others, and I'm currently working on a way to share insights with high school students across the country.

For more about me and to see my work, please visit my portfolio at
lainebruzek.com

PERSONAL SKILL DEVELOPMENT

I believe that personal skill development occurs over the course of each person's lifetime, but this time span design's relevance derives from its focus on the specific qualities outlined below.



Previous Experience

Public Speaking
Presentation
Creativity
Energy
Organization
Passion
Leadership
Time Management

Currently Tackling

Pitching and Presenting Project
Plans to Potential Company
Sponsors and Investors

PASSION

I have garnered passion for a diverse range of creative pursuits, from filmmaking to product design, as well as for creating social impact.

Challenge me to ignite new passions from scratch and leverage those passions for direct action, implementation, and learning.

LEADERSHIP

I have practiced leadership in corporate and academic contexts, such as within student groups, project teams, and teaching.

Challenge me to lead a Design Project Team or host a large-scale event, with extreme deadlines or interesting constraints.

PRESENTATION

I feel comfortable stepping into public speaking positions, where I must confidently, clearly, and visually articulate my ideas.

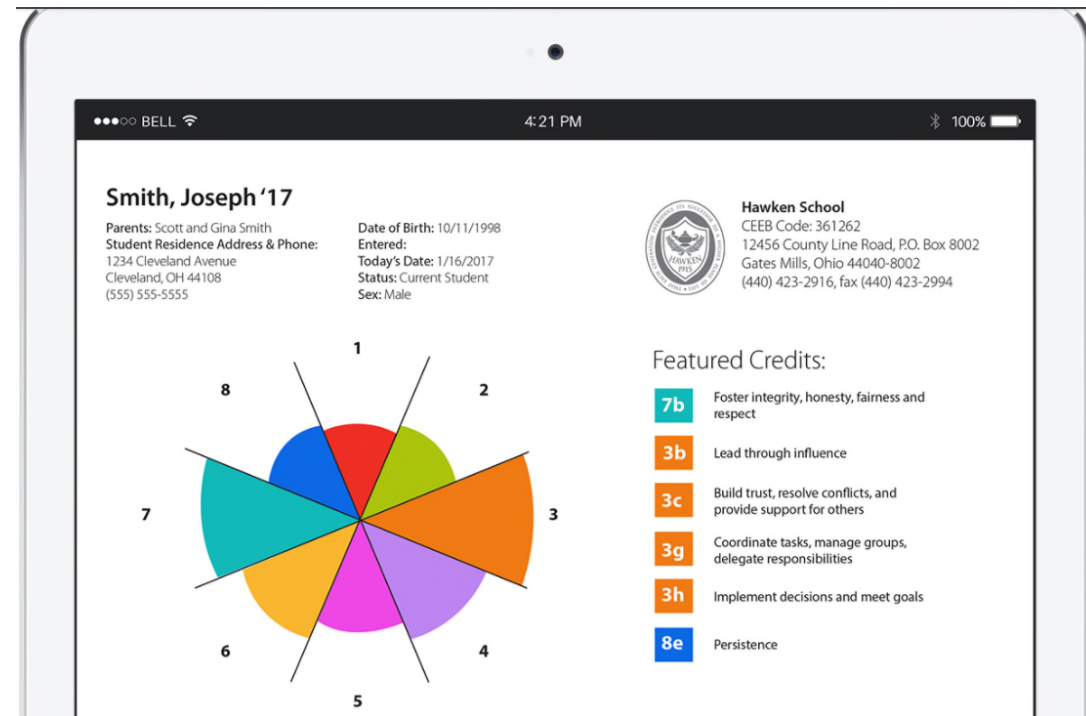
Challenge me to develop persuasive and advanced slide-flow presentations on Keynote.

MASTERY TRANSCRIPT

— CONSORTIUM —

A Broken Tool

The high school transcript aims to assess student progress and performance, but it is a broken instrument that no longer serves students, teachers or the world outside our school walls.



OPEN LOOP UNIVERSITY

We look back from 2100 at the era when Stanford brought an end to a society of alumni in favor of lifetime learning.

Avocados don't all ripen after exactly **8 days**,
so why is everyone ready for college
after **18 years**?



Introducing Open Loop education.
Your **pace**, your **time**, your **life**.

Stanford Open Loop University
It isn't a time in your life, it's a life time.

What Employers Say About Looping Students



"We actually created new career tracks to accommodate looping employees because we've found the benefit to be substantial."

"We actively seek candidates that make lifelong learning a priority."

"We value employees that have an insatiable curiosity."

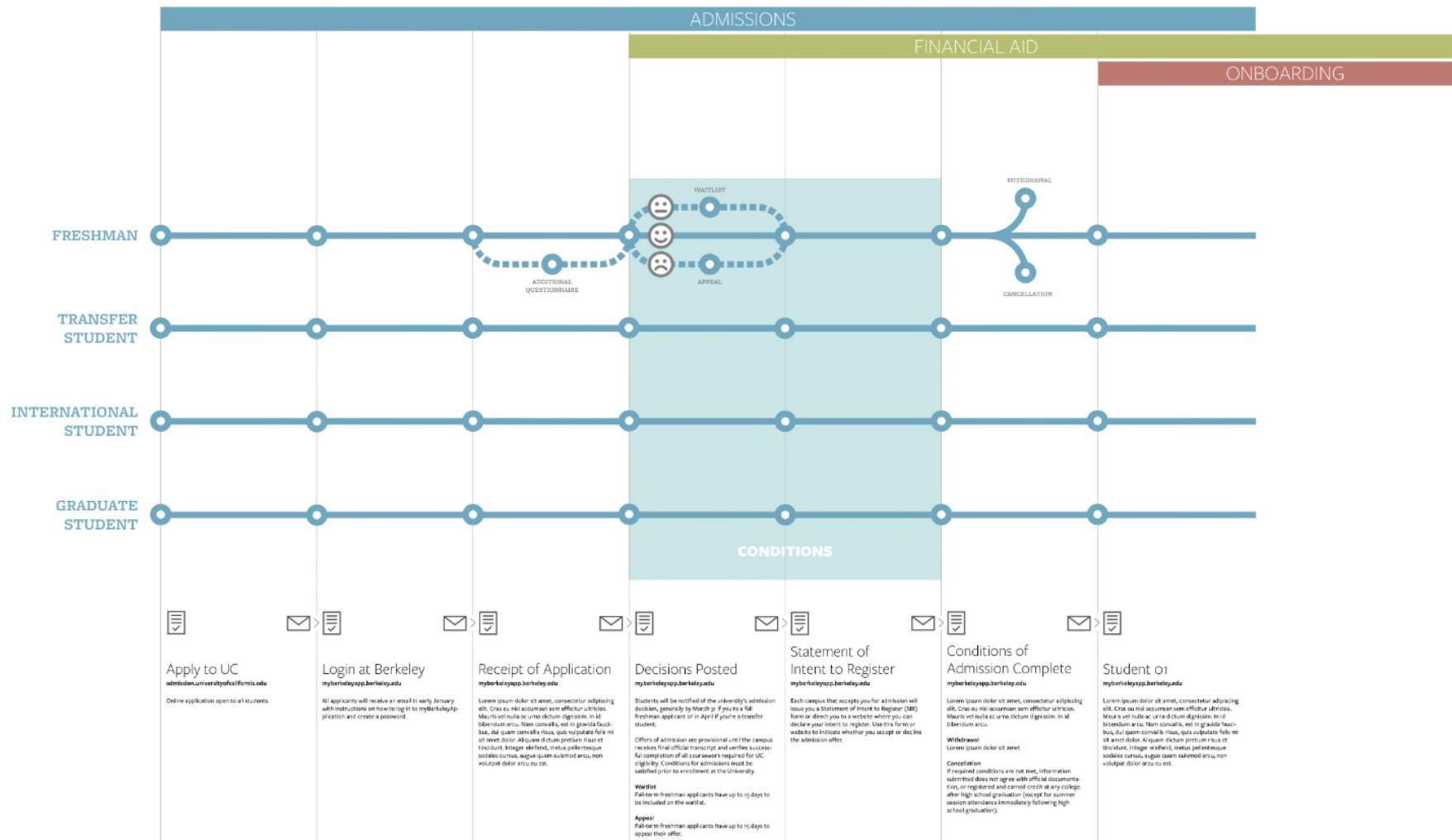
Stanford Open Loop University

[illegible]

UNIVERSITY of HAWAII
KAPI'OLANI
COMMUNITY COLLEGE

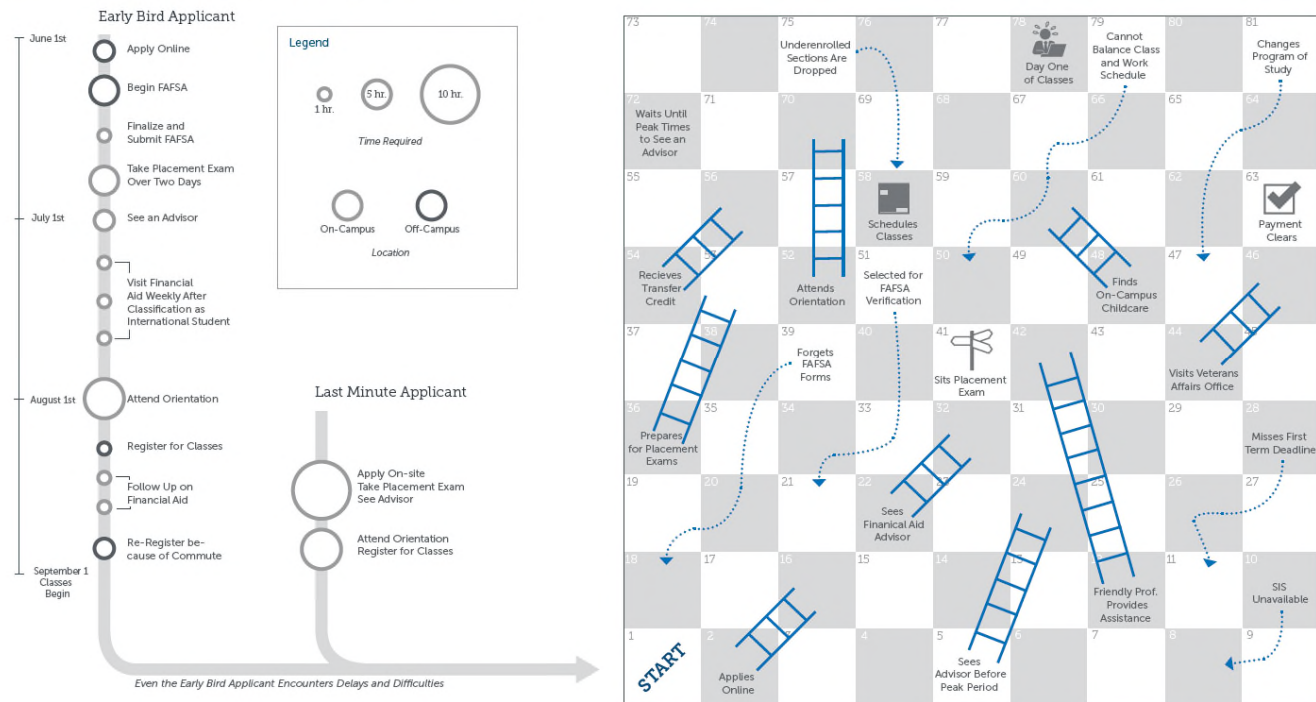


Student Experience Map



Student Onboarding Akin to "Chutes and Ladders"

Uncommon Persistence and College Navigation Skills Needed

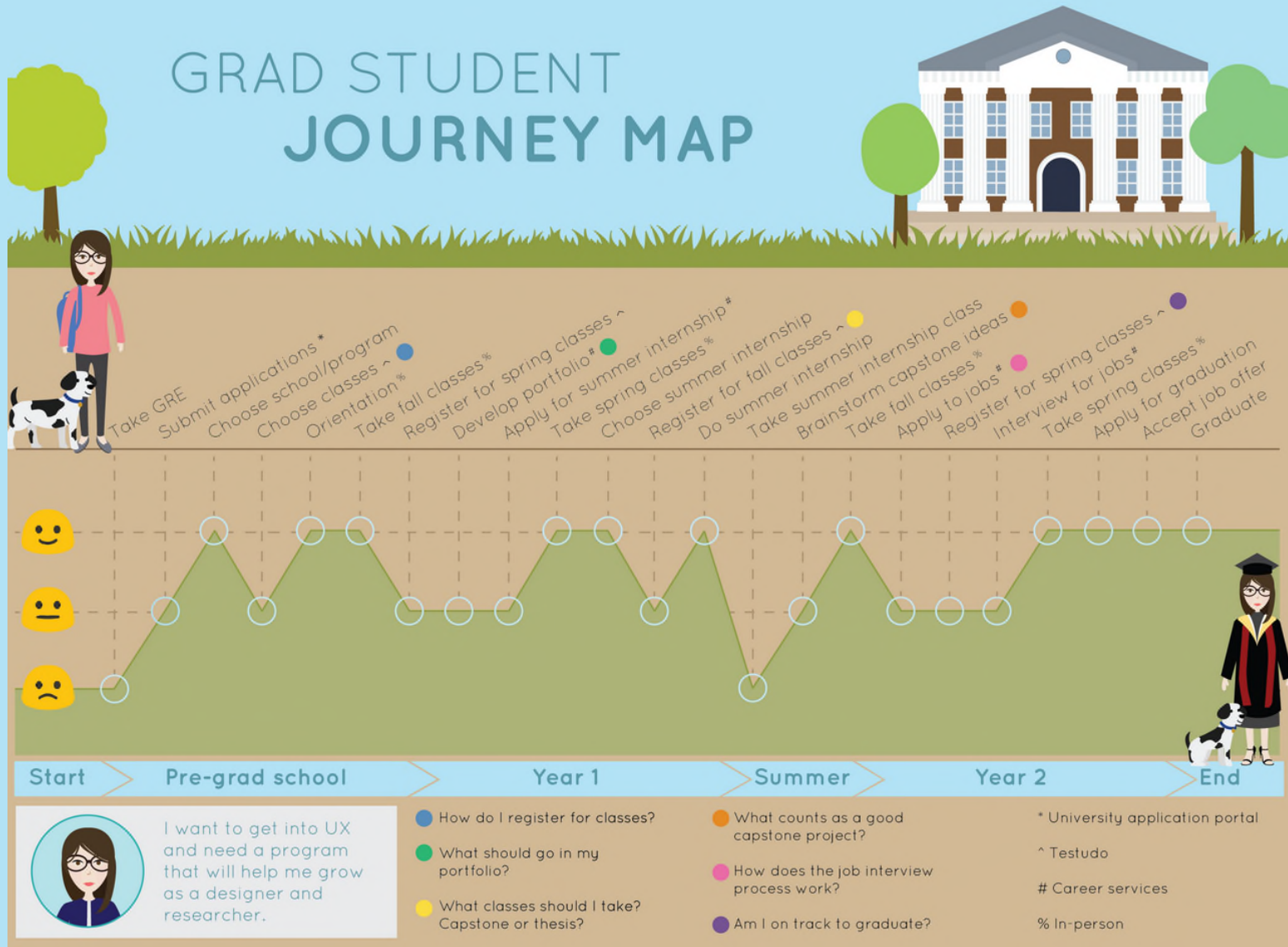


Community College Executive Forum

Learn More
eab.com

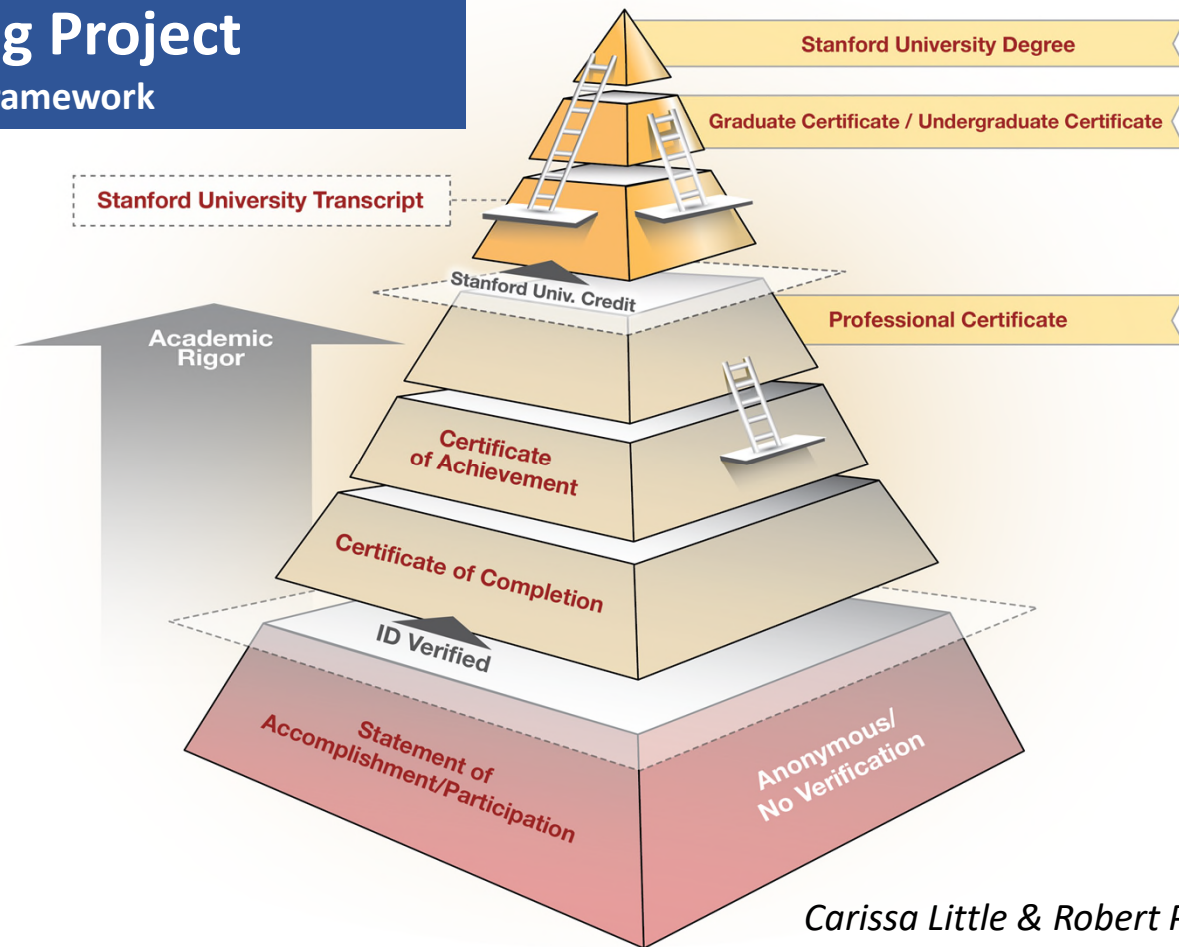
©2015 The Advisory Board Company • eab.com • 29056

GRAD STUDENT JOURNEY MAP

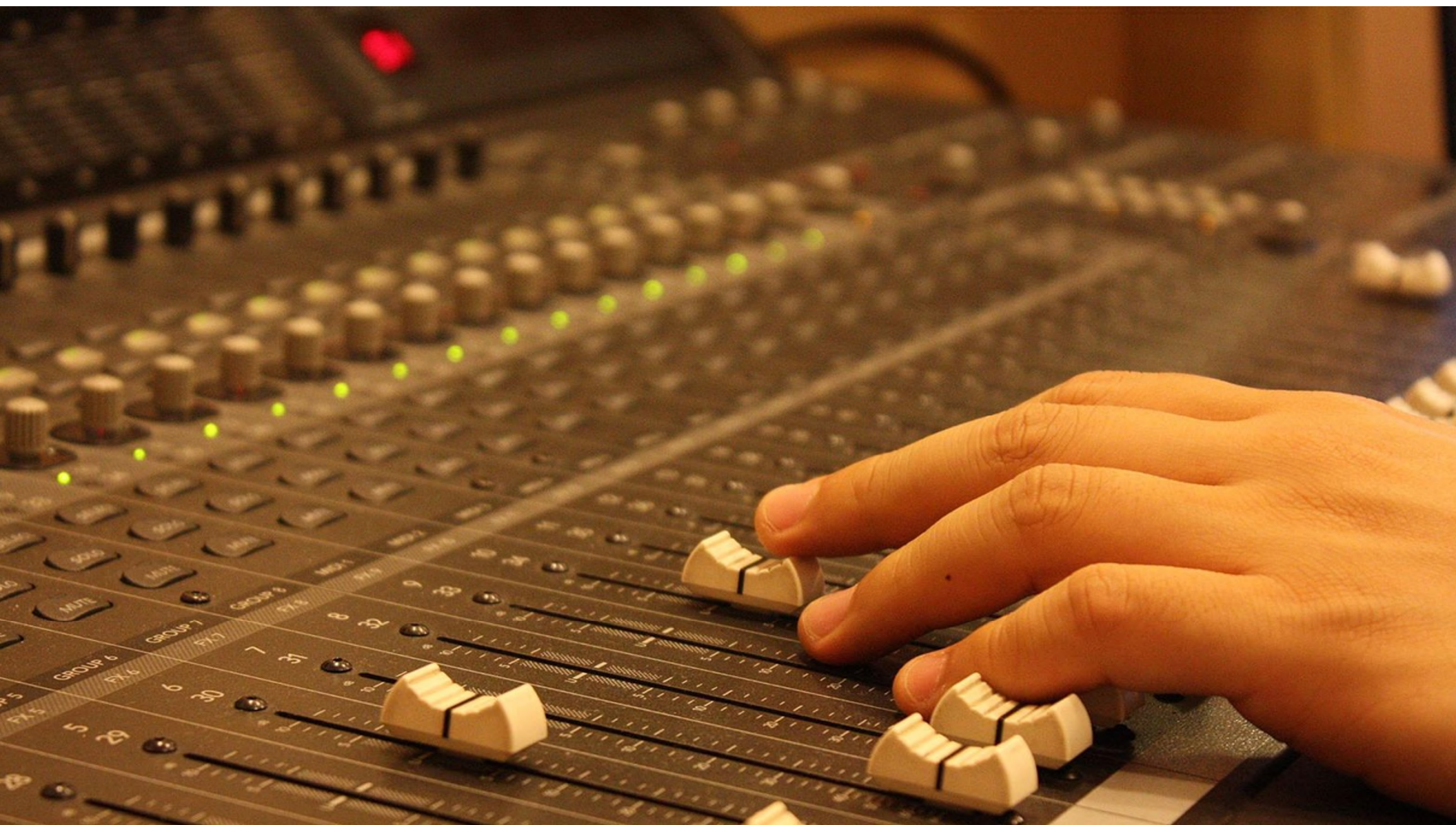


Stanford University Credential Mapping Project

Draft Framework



*Carissa Little & Robert Prakash (2016)
Stanford Center for Professional Development*

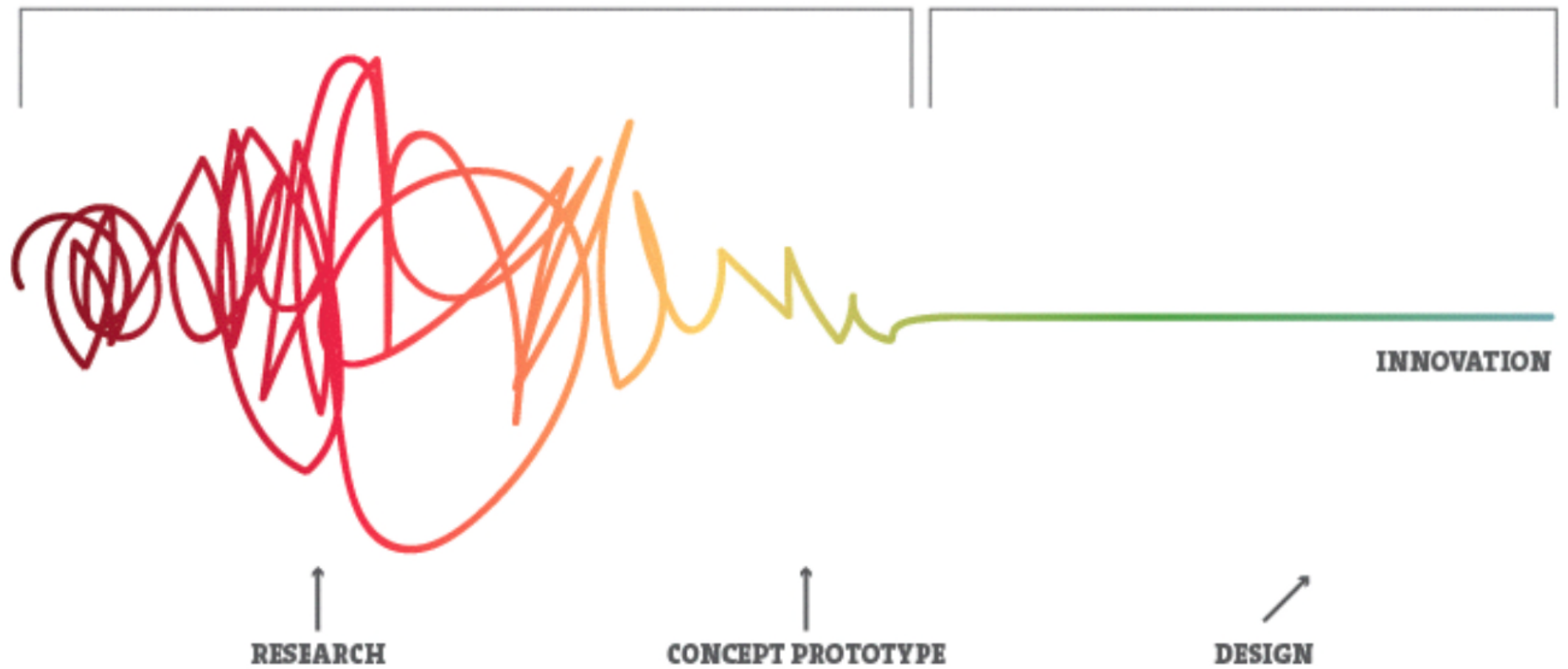


**This present moment
used to be the unimaginable future.**

Stewart Brand

UNCERTAINTY / PATTERNS / INSIGHTS

CLARITY / FOCUS



Adapted from Central Office of Design

Thank you!

Helen L. Chen, Ph.D.
Stanford University
hlchen@stanford.edu
@helenlchen

