Fostering Self-Direction through Design, Technology, and Research (DTR)

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Delta Lab | Design, Technology, and Research (DTR) | Northwestern University

Thank you for the wonderful introduction, Mike. I am so thrilled to be here today, as I have wanted to connect more deeply with you all in learning sciences for some time, and I hope this opportunity serves as a starting point for us to talk a lot more.

For over a decade now, I have been searching for a more compelling vision of what learning and growing can look like in higher ed, and DTR is what I came up with. So I am excited to share what we do in DTR with you today, , and how it has become a vehicle for helping our students learn to self-direct not only their research work, but their lives.

Design, Technology, and Research (DTR)

So, what is DTR? DTR is a learning community in which we use independent research as a vehicle for students to learn how to self-direct complex work, and to learn about themselves as people.

Already, notice that our mission isn't to train students to become academics, or to simply produce new knowledge.

Students enroll in DTR as a course. They take it over multiple quarters to deepen their learning and advance their research.

Even though it's a course, really a community, and all students in DTR, regardless of seniority, lead their own research project from day 1. Research projects are broadly in the area of human computer interaction and in human-AI interaction.

In DTR, we teach students how to work with themselves, so that they have more effective models and processes for thinking about complex problems. Students frequently externalize their thinking on the board, and receive coaching on not only the work itself but on how they are approaching their work.

Students learn how to lead their own projects, to formulate plans for next steps and present them to peers and mentors. They learn how to recognize risks and obstacles, and devise strategies for overcoming them.

Students learn to not only rely on themselves, but to learn from others. They learn that self-directing complex work relies on a supportive community, and that self-direction requires learning to serve yourself, learning to serve others, and learning to allow others to serve you.

We learn also to take time to breathe, that learning and growing requires us to be able to slow down, find center, and engage with presence.

We also take time to talk to one another each week, about our practice, our struggles, and our growth.

We learn to reflect on our metablockers, or what prevents us from doing what we want to do and growing into who we want to be.

And we make time to talk about all this, focusing not just on project progress, but on personal growth, and how we learn to work with ourselves as we grow.

DTR is a lot of things, but I think it's first and foremost, a community. It's where we come together to work and learn, yes, but also where we come to belong, and to be with one another. It's a community where students learn to lead, and lead everything —- including this art-a-thon that brought us together one quarter.
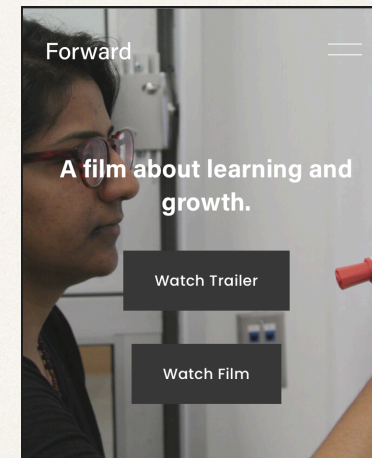
Outcomes (11 yrs)

❖ 176 students (152 UG, 11 MA, 15 PhDs) who led 70+ research projects.

❖ 50% women!

❖ 73 undergraduate research grants

❖ 30 papers + extended abstracts; 7 winners at major ACM Student Research Competitions

❖ Many DTR undergraduates placed at Apple, Google, Microsoft, Meta, and Amazon; others have founded their own companies.
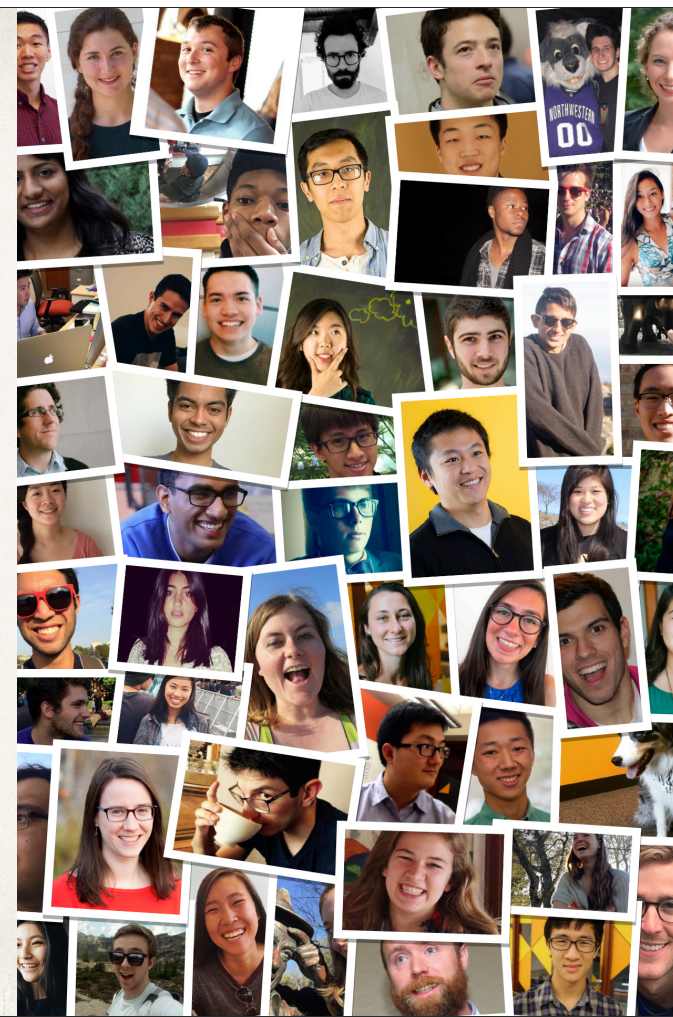
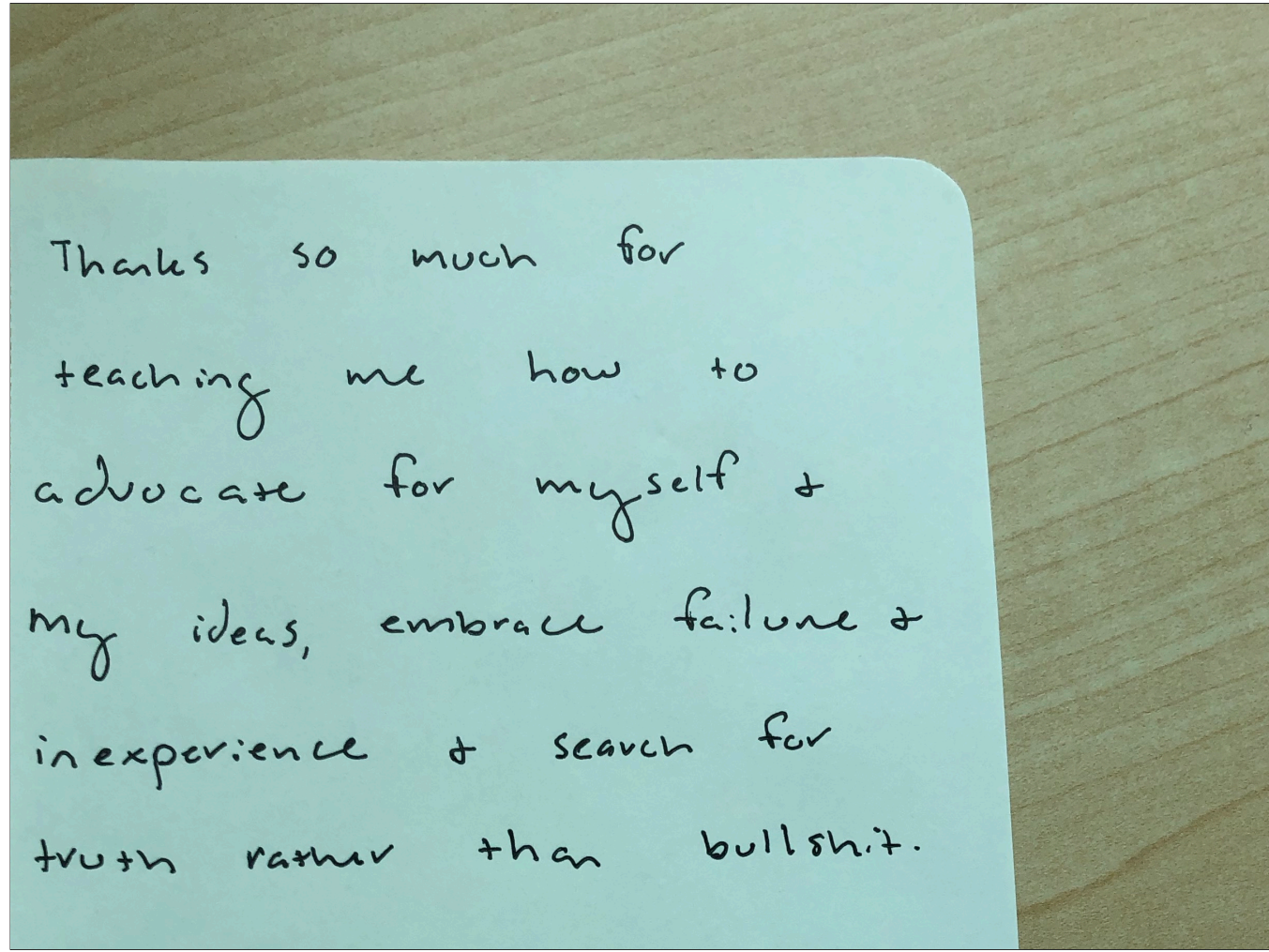And in 11 years, in my own studio at Northwestern, we have now hosted...

Success beyond Northwestern

✦ Founded Agile Research University (ARU) to support 70+ faculty at universities across the world using the Agile Research Studios model (even in the humanities!)

✦ Produced the DTR documentary, *Forward* See: http://forward.movie

✦ DTR annual letters to start deeper conversations on mentoring and learning See: http://dtr.northwestern.edu/letters

Forward

A film about learning and growth.

Watch Trailer

Watch Film

DTR pioneered a new model for research training and student learning, that we call agile research studios. I have since founded the Agile Research University program, where we provide resources, tools, guides, and site visits to support 70+ faculty using our model to train their own students back home.

In 2022 we released the DTR documentary, Forward, to further share our culture of learning and growing. I also began to write annual letters, so initiate dialogue in and out of academia on what learning and growing looks like, and the challenges we face as students and educators.

Thanks so much for teaching me how to advocate for myself & my ideas, embrace failure & inexperience & search for truth rather than bullshit.

Beyond these outcomes, what we really did, and what I will get to later in this talk, is finding a way to use research training as a vehicle for students to learn about themselves, and to grow as people.

Quote: Thanks so much..

Notice that the most important thing here is not about producing research, but about creating a space where someone can see themselves differently, as they engage with their work and themselves differently.
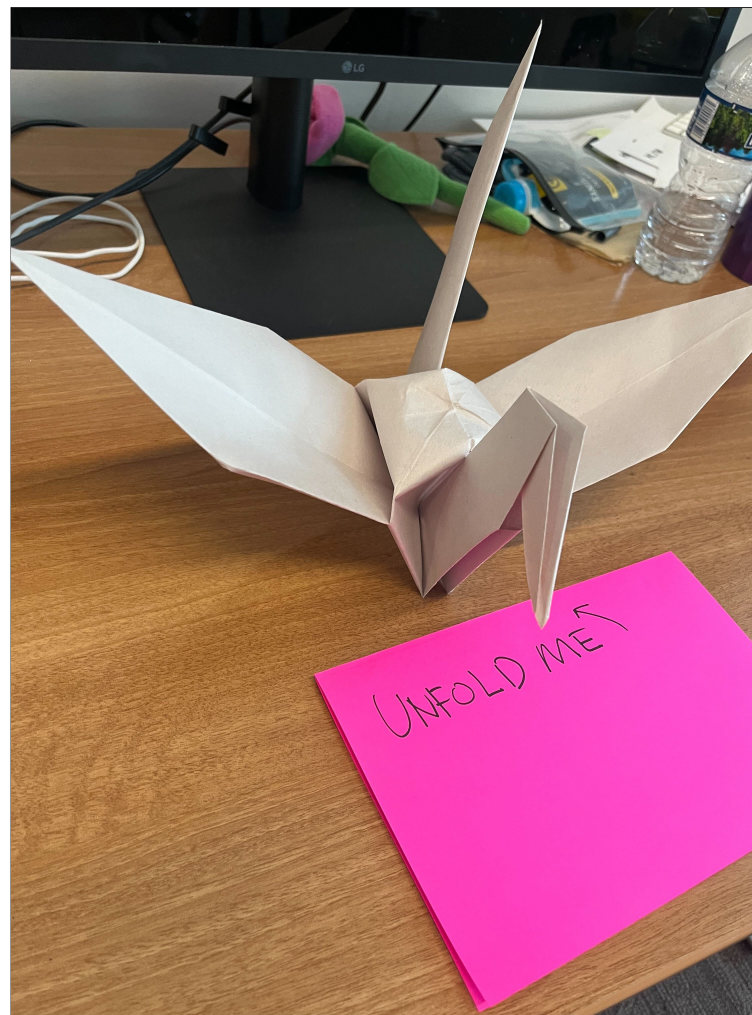
Hi Haopi,

Thank you! for how much you genuinely care about & pay attention to not just our work, but our development as researchers & as people.

As undergrads, + we found home in OTR. It means more than we can say. Thank you for making OTR available to us. It's more than a class or research experience — it shaped our perspectives & helped us see new ways of being.

I came in trying to impress. I'm leaving trying to understand. OTR taught me that beyond doing stuff, framing as if it makes meaning, we can chart a path incrementally & deliberately towards truth. This has a place of "no familiar scars, no broken hearts. This territory goes uncharted." (Uncharted ♪ Sara Bareilles) with the terrifying & liberating freedom to not know.

I've learned to hold onto my values when everything's loud, to push (ahh), when I believe in something — not because I'm supposed to — & to care for myself & those around me while doing 4. I never expected to be given the tools to see, test, & sharpen even my most ingrained "flaws" — my stubbornness, burnout, flimsy/flimsy instincts — & hold them with both honesty & compassion.

Thank you for providing the space to discover the warmth & weirdness inside me. With clarity, you helped me see who I was — & who I could be. In witnessing you building a living ecosystem so bold, rigorous, & full of heart (like OTR), I started to believe I could build the world that I wish to see. I feel safe to have always had an amazing mentor to have my back as I stepped into research. Thank you for everything. I couldn't have asked for a better 2 years.

People say that "HA has a tough style of mentoring." However, no matter how much I tried to prepare myself, I certainly didn't expect to get kicked off a metaphorical cliff.

I thought: I realized:

Until OTR, I had no awareness of how I was tormenting myself or how closed off I was from the world. I came in me needing desperately to prove myself, telling myself that I NEEDED to get somewhere. It never occurred to me that a gentler approach was even possible, let alone effective. You taught me to pay attention & help me become more perceptive of the wonderful world around me. Thank you for giving me tools to become more self-aware & be able to reflect more meaningfully on what it means to be true to myself.

Best Wishes to Haopi & OTR.

I've learned to hold onto my values when everything's loud, to push (ehh!,) when I believe in something — not because I'm supposed to — & to care for myself & those around me while doing it. I never expected to be given the tools to see, test, & sharpen even my most ingrained "flaws" — my stubbornness, burnout, flowy-flowy instincts — & hold them with both honesty & compassion.

Thank you for providing the space to discover the warmth & weirdness inside me. With clarity, you helped me see who I was — & who I could be.

How does a space for research training, help with this kind of learning and growth? And what does this kind of personal growth have to do with doing research?

And if they are related, or in someways, deeply symbiotic and intertwined as I will later argue them to be, what does that say about how we are helping students grow, when we create research training opportunities? And in creating learning spaces broadly?

Rest of the talk

- Structuring research training

  - Deepening practice

    - Fostering self-direction

For the rest of the talk, I will walk you through how we went from structuring a new learning environment for research training, to deepen one's research practice and knowing oneself, to supporting students learning to self-direct their work and lives.

In particular, I will highlight how personal growth and deep engagement in research need not be, and perhaps shouldn't be, separate from one another.

At the end of the talk, I will more broadly argue for learning spaces in higher education and beyond that cultivate people's capacity to self-direct their work and life.

Structuring research training

Design, Technology, and Research (DTR)
Spring 2014

Not long after I started at Northwestern, I begin mentoring undergraduate students in independent research through a new program I started called Design, Technology, and Research (or DTR).

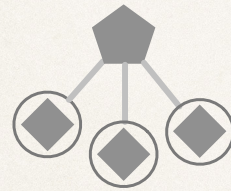This photo is taken in the Spring of 2014, when we started with just 7 students.

Design, Technology, and Research (DTR)
Winter 2016

In less than 2 years, I was mentoring over 20 students on 14 independent research projects. And very quickly, I learned that faculty time doesn't scale.

Best human solution

Apprenticeship

"apprenticeship requires a very small teacher-to-learner ratio that is not realistic in the large educational systems of modern economies."
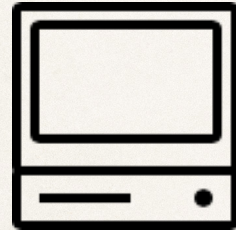
[Collins & Kapur, 2005]

This challenge is really hard because the best human solution we know, unfortunately, doesn't scale.

Apprenticeship, or 1-on-1 mentoring, is a highly effective model for training people to do complex tasks.

But Allan Collins reminds us, that sadly, apprenticeship requires ….

Best machine solution

No AI technology can replace the mentor in the foreseeable future.

[Jarvela & Hadwin, 2013]

And unlike for some other problems, there is no best machine solution in sight here.

Software can provide helpful prompts to guide student thinking, but no AI technology can replace the faculty mentor in the foreseeable future,

I know ChatGPT is pretty cool, but we lack a model for solving complex, ill-structured problems in design/research, and models of instruction that help students develop the skills and sensibilities for engaging deeply in research

Options

✤ Wait for a technological silver bullet

✤ Compromise

✤ Or…?

This seems to leave us with very few options.

We can wait for a technological silver bullet, but it could take quite some time or may never come.

We could compromise in a variety of ways:
- scale lecture
- training a small set of elite students
- or giving undergraduate students rote work
- **But yet none of these options provide the same learning benefits.**

Students need regulation skills

✤ **Regulation skills**: cognitive, metacognitive, motivational, and emotional skills for reaching a goal *[Jarvela & Hadwin. 2013]*

✤ Independent research requires regulation skills including **planning** and **seeking help** to overcome challenges.

✤ Students lacking these skills are confined to rote tasks, or can struggle to make progress.

What we found is that if you really want students to become self-directed so they can conduct independent research, they are going to need regulation skills.

Regulation skills are ......

And the thing is that regulation skills are really hard to learn, and we do a terrible job of teaching them! Bang your head. There is got to be a better way.

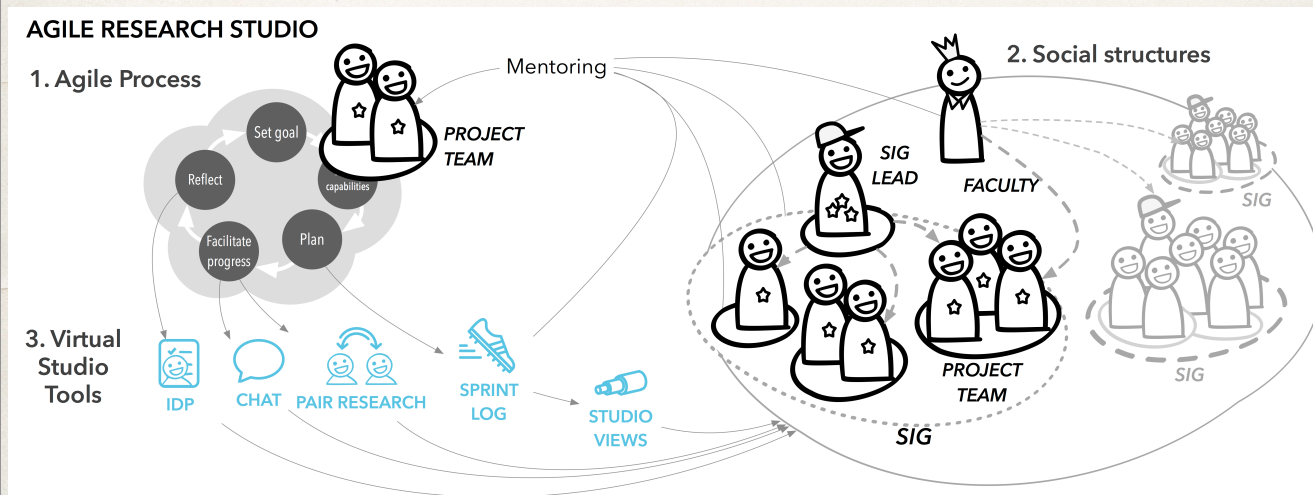To help with students learning regulation skills, we created Agile Research Studios as a new model for research training in a learning community.

In this model, all students, regardless of seniority, conduct independent research and receive authentic research practice. By authentic research practice, I mean that students drive the self-directed learning cycle, where they set goals for their project, learn what they need to learn, make a plan, do the work, and reflect on what they have done and learned to plan again.

# Agile Research Studio (ARS): a socio-technical model for developing regulation skills

AGILE RESEARCH STUDIO

1. Agile Process

Set goal
Reflect
capabilities
Facilitate progress
Plan

PROJECT TEAM

Mentoring

2. Social structures

SIG LEAD
FACULTY
SIG

PROJECT TEAM

SIG
SIG

3. Virtual Studio Tools

IDP   CHAT   PAIR RESEARCH   SPRINT LOG   STUDIO VIEWS

[Z., Easterday, Gerber , Rees Lewis, Maliakal]

ARS provides a socio-technical model with processes, social structures, and tools that work together to help students develop regulation skills.

I will get into some of the details of it in a minute, but what I want to highlight for now is simply that
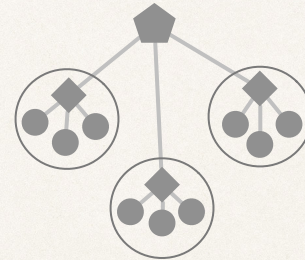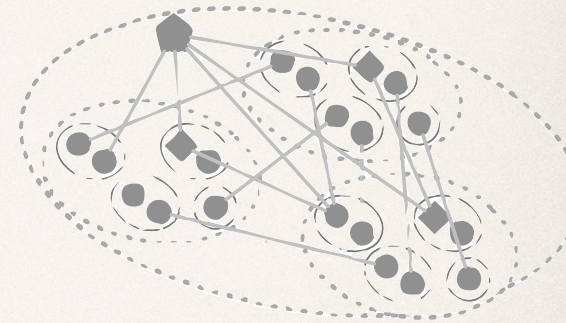
ARS transforms student and faculty's roles

The ARS approach:
Dispersed Control

Apprenticeship   Hierarchical, 1:1:1
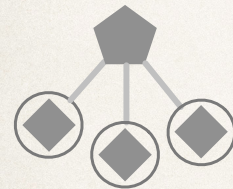
very small teacher
to student ratio
[Collins, 2005]

grad students are
novice mentors
[Shulman, 1986]

overcome 1:X
[Bain & Weston, 2012]

ARS transforms ….

as grad students are still learning to master research, they are just beginning to learn to mentor.

undergrads working under them are still likely to be constrained to rote tasks and not get authentic practice in self-directed learning.
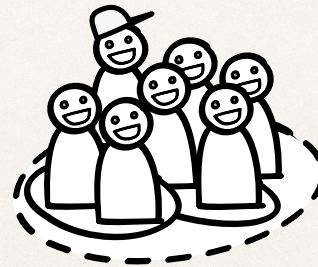
But I think more than scaling faculty time, it TRANSFORMS faculty time —where my focus isn't on simply helping students get over struggles in the research work, but to develop their regulation skills and also to work with them as individuals.

To present the ARS model, i will first describe how ARS supports students learning to plan research work.

Adapting the agile process from software development and design, our students plan their work at 2 week intervals to deliver value for their research.

They get feedback on their plans from peers and mentors who co-regulate their learning,
but they remain responsible for figuring out what their deliverables may look like, what blockers they might hit, and so on.

SHIFTS RESPONSIBILITY FOR PLANNING ONTO THE STUDENT

Planning Strategies

✤ assessing risks

✤ using effective representations for thinking about problems and solutions

✤ building at the appropriate fidelity

✤ prioritizing important features and research questions

✤ moving on despite uncertainty or imperfect knowledge.

we found students developing regulation skills in planning

ARS: Help & Collaboration

Process:
Distributed help
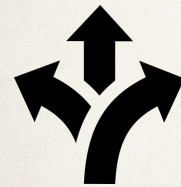
Social structure:
Studio meeting
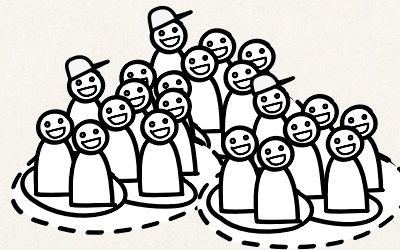
Studio tool:
Pair research

| LEAVE POOL | RESET POOL | MAKE PAIRS |

This is how you appear to others. (edit)

Help me with figures for my CSCW talk
Haoqi Zhang
○ 1 ○ 2 ○ 3 ○ 4 ○ 5

How much can you help with each of these tasks?
(1: not at all, 5: totally)

SL — help me with relational information visualizations
Sarah Lim
○ 1 ○ 2 ○ 3 ○ 4 ● 5

KG — Implementing iOS push notifications in Node
Kapil Garg
○ 1 ○ 2 ● 3 ○ 4 ○ 5

AK — topcode schema development
Alex Kaldjian
○ 1 ○ 2 ○ 3 ● 4 ○ 5

JW — getting iPhone motion activity type in Meteor Cordova
○ 1 ● 2 ○ 3 ○ 4 ○ 5

[Miller, Z., Gilbert, Gerber]

Help & Help-seeking

✣ *"I can ask for help and that everyone asks for help and it doesn't make them stupid to need help."*

Winter 2016
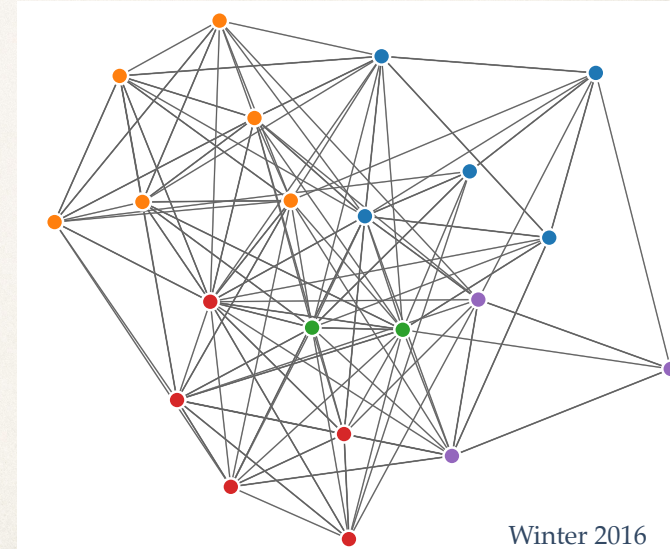
What you see in the graph on the right is that students were very willing to help others, both within SIGs and across SIGs.

But what's really compelling is to see shifts in students' help-seeking dispositions.

Summary: Structuring Practice

✤ Develop regulation skills for research planning and help-seeking across structured interactions

✤ Extends the scale and capacity of a community to produce and learn

by integrating various slices of integrations across the ecosystem, we are able to extend the scale and…

Do what the mentor can't possibly.... but the ecosystem can!

Deepening Practice

Developing regulation skills for building a self-directed (research) practice

Cognitive skills

- ✤ representing problem and solution spaces
- ✤ assessing risks
- ✤ critical thinking and argumentation
- ✤ core design, research, and STEM methods

Metacognitive skills and dispositions

- ✤ planning: forming feasible plans and planning effective iterations
- ✤ help-seeking: leveraging resources; seeking help; communication skills
- ✤ reflection: awareness of one's own skills, abilities, and metacognitive blockers

Emotional regulation and disposition toward self and learning

- ✤ emotional regulation: understanding one's fears and anxieties
- ✤ disposition: dealing with failure, embracing challenges, embracing self-direction

There is a lot of regulation skills to learn.

Not easy to be really good at any of them.

All kinds of scaffolds can help, but good coaching really matters.

Challenge #1: understanding and address the gaps in students' practice and regulation is **really complicated.**
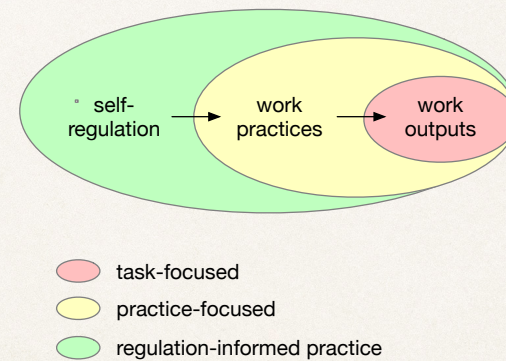
understanding and address the gaps in students' practice and regulation is really complicated.

Claim: Students and coaches tend to over-focus on issues in work output, than on understanding a students' practice and regulation
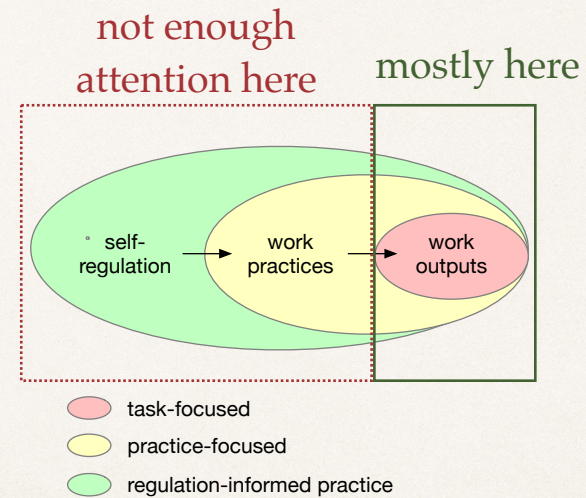
In project based learning environments, a lot of effort is spent understanding the work output, and there is little focus on understanding a student's practice and regulation.

And this makes it really unlikely that they can give good feedback on how students are approaching the work, even when those are actually the desired learning goals.

Interactive CAP Notes

[Garg, Gergle, Z., under review]

Stella, Coaching Session, End of Sprint 2

B Issues of concern:
- prototype is missing a key feature
- did not seek help on prototyping in pair research

A Practice Trace
- latest prototype
- design argument
- practice reflections

C **Context**: what are you seeing and hearing?
- Stella: *"I am worried about getting the prototype working in time for testing"*
- Not prototyping to the design hypothesis
- Spent a lot of time building backend features

E **Stella's tracked regulation gaps**

D **Assessment**: what is happening?
- Didn't use lo-fi prototyping techniques to deliver value more quickly
- [gap] need strategies for slicing work to risk
- [gap] has a tendency to crank than to consider better strategies when overwhelmed

- not slicing work to risk to more quickly advance learning
- has a tendency to "crank" than to apply better strategies when overwhelmed

F **Plan**: what do we do about it?
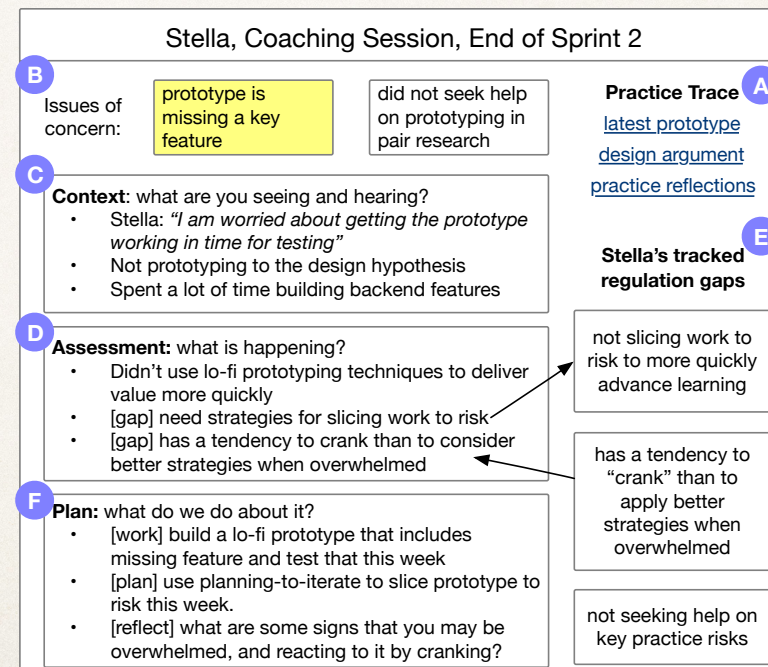- [work] build a lo-fi prototype that includes missing feature and test that this week
- [plan] use planning-to-iterate to slice prototype to risk this week.
- [reflect] what are some signs that you may be overwhelmed, and reacting to it by cranking?

- not seeking help on key practice risks

Coaching focuses on understanding practice and regulation

Build and share models of regulation behaviors and practices for addressing regulation gaps
Track regulation gaps across weeks

Create shared language and scaffolds for talking about and working on particular regulation skills

Practice Objects for tracking practice and regulation [Garg, Gergle, Z., under review]
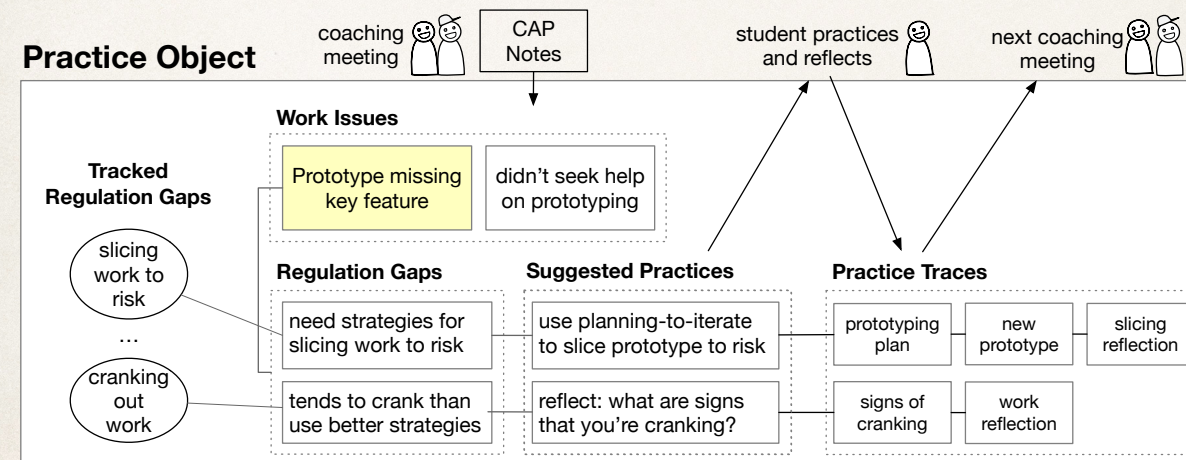
And this has allowed us to transform the way we coach and facilitate practice.

You know, coaching is one of those things where the technology doesn't really exist outside of a notepad, right?

Computationally, we maintain a representation of how a student's practice develops over time, which then gets facilitated across the ecosystem, and then back via tools that support our developing understanding of the practice, based on which we can make better practice suggestions, and then computation can support students doing that…

Deep integration into the actual functioning of the ecosystem

Creating space for learning about regulation

✤ See students and build strong relationships

✤ Hold space for reflection, sharing, and acceptance

✤ Recognize that patterns + beliefs recur, and can be quite sticky

✤ Value developing regulation skills over production

✤ Problematize how students approach problems and look at themselves (see "Interruption, Discord, and Drama" in 2025 DTR letter)

Challenge #2: Seeing and acting on the *good* of engaging in research

✤ Dancing with not knowing

✤ Re-examining phenomenon

see: "The Good" and "Beyond Production" in the 2024 & 2025 DTR annual letters

✤ Re-examining beliefs and worldviews

✤ …

These goods are largely not about producing research, but about how we engage with it, deeply.

Beyond skills for producing an outcome, what goods does the activity of research make available to us that we can come into contact with?

Parallel: Historical Thinking

Sam Wineburg

"Historical thinking in its deepest form is neither a natural process nor something that springs automatically from psychological development. [But it] teaches us what we cannot see, to acquaint us with the congenital blurriness of our vision."

Learning to engage deeply in intrinsically valuable human activities

✤ **Dialectical activities**: human activities that are valuable for their own sake [Brewer, The Retrieval of Ethics, 2008].

✤ **Examples**: parenting, relating to other human beings, making art or music, conducting research, …

✤ Engage with an imperfect sense of their **good** and place in our lives.

✤ Self-unveiling: deepen understanding of activity's ideals by acting in pursuit of its ideals

To think about what deeply engaging in meaningful human activities may look like, I use Talbot Brewer's concept of dialectical activities, which are human activities that are valuable for their own sake. Examples of dialectical activities include parenting, relating to other human beings, making art or music, and conducting research.

And the key idea here is not that such activities cannot produce an outcome, but that there is something intrinsically valuable about these activities that isn't simply captured in an outcome.

What's interesting about dialectical activities is that we engage in them with an imperfect sense of their good and place in our lives. It's through our self-deepening engagement with the activity that the activity reveals its meaning to us. As we engage in it, we deepen our understanding of what's good about the activity, and how to better act in pursuit of its ideals.

For those of you who have engaged in research for quite some time, you might think about how your view of research and the good in research might have developed over time, not only as your skills have grown, but as you have come to see the value of research differently, across your career.

Learning to engage deeply in intrinsically valuable human activities

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✤ **Key Question:** How does a person come to engage more deeply, so as to deepen their grasp of the good in the activity in which they are engaged?

Learning to engage deeply in intrinsically valuable human activities

Personal Growth ⟷ Deepening Engagement

In DTR, the research process is a vehicle for shifting patterns. I see the developmental process within DTR as one of finding a greater range of movement.

"Movement," 2025 DTR Annual Letter

Learning to engage deeply in intrinsically valuable human activities

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Personal Growth   ⟷   Deepening Engagement

Fear of not being good <==> Production-Orientation

Fear of imperfection <==> Running away from what's
          actually important in the research

Fear of not knowing <==> Grasping onto existing
          ways of doing and knowing

Creating space for learning to engage deeply

✤ Focus on understanding oneself *and* engaging deeply

✤ "You do not have to be good"

✤ Model engaging deeply, and vulnerably <- can't fake this

Until PTR, I had no awareness of how I was tormenting myself or how closed off I was from the world. I came in needing desperately to prove myself. telling myself that I NEEDED To get somewhere. It never occurred to me that a gentler approach was even possible, let alone effective. You taught me to pay attention & help me become more perceptive of the wonderful world around me. Thank you for giving me the tools to become more self-aware & be able to reflect more meaningfuly on what it means to be true to myself.

If we are not aware of the wonderful world around us, is that really the position you want a student to be in as they do research? How can they seek with open eyes?

Summary: deepening practice

✤ Understanding and coaching regulation as we facilitate students seeing themselves and working with their patterns

✤ Understanding that personal growth and engaging deeply go hand in hand

Fostering self-direction

For the last part of my talk, I want to talk about self-direction, and why I see it as central to not only what we do in DTR, but broadly as a compelling vision for education.

What is self-direction?

A good starting place may be to ask, what does it mean for one to self-direct their work and life?

What does that entail, and what skills or mindsets may be pertinent to it?

What is self-direction?

Core Concepts	Description	Examples of Related Concepts
Self-regulation	Cognitive, motivational, emotional, metacognitive, and strategic behaviors for reaching desired goals and outcomes (Zimmerman, 2000; Järvelä & Hadwin, 2013)	Metacognition; mindset; planning; socio-emotional learning; intrinsic motivation; self-determination theory; autonomy supportive
Dialectical understanding	Understanding oneself and learning to live up to values one endorses (Brewer, 2009).	Narrative identity; life stories; self-actualization; introspection; virtue; dialectical activities
Aspiration	The transforming of oneself into another, desired self (Callard, 2018).	Becoming; identities and aspirational selves

Core theoretical concepts on three facets of self-direction:
self-regulation, dialectical understanding, and aspiration.

And by first approximation, I think we can describe three aspects of self-direction that seem reasonable:

- We have already talked about the value of self-regulation, as a way to effectively drive towards one's own goals, which can include the need to learn and grow in the face of new challenges and situations.
- We have also talked about the value of dialectical understanding, by which I mean understanding oneself and learning to live up to values one endorses
- And implicitly we have touched on the idea of aspiring, that is, the idea of transforming oneself into a more desired self, perhaps by acquiring and endorsing values that one doesn't yet hold.

DTR is an example of what a community for research learning looks like, when it is central.

You get students who come to see themselves more clearly, and who can engage with research more deeply.

But you also get students who can take this way of approaching not knowing in research, and to engage deeply, to approach not knowing elsewhere in their life.
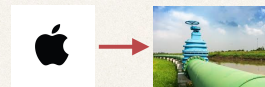
Success is not just about sending someone to grad school, but about helping students grow into themselves and to have the courage to pursue a life that is their own

Kalina: Big Talk, a social movement to foster more meaningful conversations
Meg:
Katherine

Takes a tremendous capacity to pursue one's passions, but also self-regulate, to know oneself and to deepen into one's passion, and to aspire

On Becoming a Person

This process of the good life is not, I am convinced, a life for the faint-hearted. It involves the stretching and growing of becoming more and more of one's potentialities. It involves the courage to be. It means launching oneself fully into the stream of life. Yet the deeply exciting thing about human beings is that when the individual is inwardly free, [they] choose as the good life this process of becoming.

On Becoming a Person

Carl Rogers

So what I sere DTR as doing, is to build within students the capacity to live compelling visions of what living a self-directed life may look like.

Helping students see themselves, and to find freedom in movement, is a large part of this vision

Learning at large

What if fostering self-direction
was central to education?

And what I am curious about is, what if preparing people for a self-directed life was more central to education?

What would learning look like?

Fostering self-direction in diverse learning spaces

Setting	Individuals Interviewed
Early Childhood and K-12	Kathryn Owen, *director,* Early Care and Education at UCSD Jiye (Amy) Oh, *autism education associate*, Alexa's PLAYC Julie Lythcott-Haims, *author* of How to Raise an Adult Christine Carter, *author* of The New Adolescence
Arts Education	William O'Brien, *art professor,* Art Institute of Chicago Elizabeth Wepsic, *chair of visual arts,* The Bishop's School Antonio Douthit-Boyd, *artistic director of dance*, COCA Ann Cooper Albright, *dance professor,* Oberlin College
Contemplative Practice	Trudy Goodman, *meditation teacher and founder,* InsightLA Chase Bossart, *director,* Yoga Well Institute. Tierney Lawson, *yoga facilitator*, Prison Yoga Project.
Therapy & Other Healing Modalities	Will Stillwell, *group facilitator,* Center for Studies of the Person Sara Schairer, *founder and executive director*, COMPASSION IT
Work, Careers, & Entrepreneurship	Alex Waters, *director,* CONNECT ALL @ the Jacobs Center Matt Rivaldi, *faculty*, San Diego College of Continuing Education

As I tried to think about how we can, support students growing in these ways through research, I looked to

Using their domain as a vehicle for fostering self-direction as I have through research

Fostering self-direction across learning domains

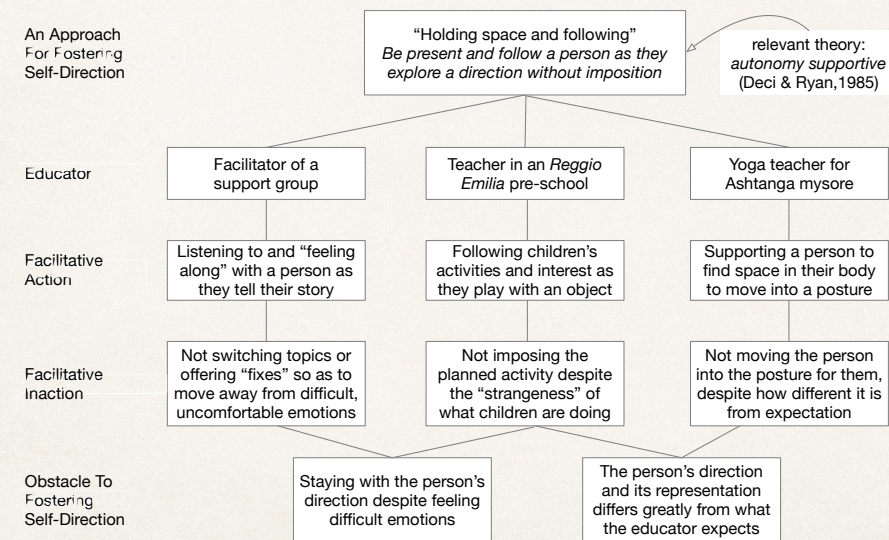|		
An Approach For Fostering Self-Direction	"Holding space and following" *Be present and follow a person as they explore a direction without imposition*	relevant theory: *autonomy supportive* (Deci & Ryan, 1985)
Educator	Facilitator of a support group	Teacher in an *Reggio Emilia* pre-school	Yoga teacher for Ashtanga mysore
Facilitative Action	Listening to and "feeling along" with a person as they tell their story	Following children's activities and interest as they play with an object	Supporting a person to find space in their body to move into a posture
Facilitative inaction	Not switching topics or offering "fixes" so as to move away from difficult, uncomfortable emotions	Not imposing the planned activity despite the "strangeness" of what children are doing	Not moving the person into the posture for them, despite how different it is from expectation
Obstacle To Fostering Self-Direction	Staying with the person's direction despite feeling difficult emotions	The person's direction and its representation differs greatly from what the educator expects

Figure: Illustration of a thematic analysis of the "holding space and following" approach to fostering self-direction across three distinctive settings.

Lots of opportunity for learning across settings, and having a shared language for this kind of learning and growing

Vision: centering self-direction across learning spaces, disciplines, and lifespan

An opportunity to move towards a grander vision of education, in which the person is at the center whether we are….

Learning becomes not only about disciplinary expertise but a kind of life thing— and that we as educators hold ourselves to be facilitators and participants in self-directing a life.

I wonder how that changes how we and our students are in the world, and the relationships we get to build with one another, as we learn, grow, and find new paths forward, whether that's in research, or elsewhere in our lives.

thank you all, and thanks to the NSF for supporting this work.

I hope you all find the following links helpful, and feel free to contact me if you need anything.

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