

## CORI N. FAKLARIS - TEACHING STATEMENT

My approach to teaching and learning arises primarily from my unique personal history: as a **daughter of a successful grade-school teacher** in language arts, as a **UX researcher and trainer** during my long and varied journalism career, and as a **Buddhist dharma teacher** of 10+ years in the Kwan Um School of Zen. My approach is also informed by theories of social cognition and behavior change that likewise guide my research, such as **Cialdini's Social Influence Theory** (which sets forth social proof, liking, and authority - along with scarcity, commitment and consistency, and reciprocity - as significant influences on people's attitudes and behaviors) and **Bandura's Social Cognitive Theory** (which posits that learning occurs in a social context within the dynamic and reciprocal interaction of individual, environment and behavior). In my interactions with students of all types, I endeavor to accomplish the following:

- **Nurture** a supportive and respectful community of learning, by using introductions to forge connections and teachable moments, building a dataset to help me engage with students, and consciously using techniques to validate students and help them cope with obstacles.
- **Scaffold** active learning opportunities for students, such as by using projected examples and Zoom breakout rooms to spark discussion, creating deliverables with weekly milestones that enable learning-by-doing, and building in reflection and peer feedback.
- **Model** professional excellence, both in my own communications and practices, and through recruiting appropriate guest lecturers who can offer new perspectives.

At the college level, I have implemented these principles both as a **co-principal investigator** for our NSF-funded Social Cybersecurity project, and as a **teaching assistant** for two of the Human-Computer Interaction Institute's required courses for bachelor's and master's degrees: Programming Usable Interfaces (PUI), and User-Centered Research and Evaluation (UCRE). Since 2018, I have **directly advised more than 20 undergraduate and graduate students** in all aspects of socio-technical cybersecurity research - from understanding people's mental models of security and generating design recommendations, to prototyping interfaces and tools that then are tested with real-world end-users and revised as needed. In PUI (Spring 2020), I used lectures, lab demos, worksheets and 1:1 mentoring during office hours to **instruct close to 20 undergraduates** in the basics of prototyping a web interface (such as an online storefront, a portfolio website, or an instructional tool) and deploying it online - as well as how to troubleshoot problems. In UCRE (Spring 2021-expected), I will gain expertise in teaching students how to empirically evaluate an interface and to work together in group projects.

Below, I offer more specifics on my ideas for, and experiences in, putting my teaching priorities into action.

## NURTURE A SUPPORTIVE AND RESPECTFUL COMMUNITY

### *Using introductions to forge connections and teachable moments*

Whether in a corporate training room or a college classroom, I ask students to introduce themselves and tell us why they are in the course. I help students to prepare their thoughts by **posting the directions on a slide or writing on a whiteboard**, and I then allow at least 2-3 minutes to think about what they would like to say. I may also **include a “fun” prompt** such as “Tell us the most recent movie or TV show that you watched, and what you thought of it,” which can be an icebreaker for the group and help to anchor student details in memory.

If there is time, a more social (and humor-generating) technique is to **pair up students or put them in small groups** so that they can first interview *each other* about who they are and what they hope to achieve, then **report back to the larger group, from memory**, what they learned about each other. This technique introduces the idea that they can work together to accomplish goals and to troubleshoot problems; and it provides an example for course material related to end users’ cognitive processing - students will now have experienced how much more difficult it is to recall information with no help than to simply recognize whether information is familiar.

### *Building a dataset to help me engage with students*

I also ask new students to **fill out an online survey** to document their **goals**, their pre-existing **beliefs** about the subject, their **skills**, and the **challenges** they anticipate. This gives shy students a chance to introduce themselves in private. Further, it accustoms the class to taking small quizzes online as part of course instruction, and it gives me a “cheat sheet” to help me learn my students’ names and interests!

For my section of Programming Usable Interfaces in Spring 2020, I included a question about what background music they recommend for studying or programming. I used the answers to **build Spotify playlists** that I shared with the students via email, and I played these during setup of lecture slides in the classroom and on Zoom.

### *Validating students and helping them cope with obstacles*

My efforts to foster a personal connection with and among students continues in my in-class communications, office hours and written feedback on homework. I consciously use **positive and polite language** such as “Great job!” or “That’s an insightful point/intriguing website feature/ thought-provoking article you shared, thank you,” to reiterate my appreciation for their contribution to the course’s success and to their hard work. If key pieces of a class assignment are missing or badly done, I **email the student and give them a chance to correct it** before entering final grades, to help show them that homework is not a “gotcha” game and that we will give allowances for personal setbacks and mental blocks.

I also consciously **monitor my body posture, facial expression and tone** to avoid and correct any intimidating gestures or coldness in my way of speaking. In particular, and on the suggestion of my grade-school-teacher mother, I use **“soft eyes”** when looking at students to help put them at ease under scrutiny. Providing a URL to an **anonymous feedback form** can further help students let me know whether they experience any “microaggressions” or uncomfortable language or comments in the classroom or during other interactions.

Last but not the least of these efforts - at Carnegie Mellon, as in my industry career, I **kept a jar of individually wrapped candies and chocolates on my desk** to encourage drop-bys. I brought the jar to my PUI section to pass around, and I **threw candies to students** when they raised their hand to ask or answer a question. This gives students a quick hit of sugar during their afternoon sleepiness, but also helps to incentivize their attendance and reward them for speaking up. I **asked about food allergies and favorite treats** in my intro survey for PUI in Spring 2020 to make sure that I would be aware of their preferences and medical issues.

## SCAFFOLD ACTIVE LEARNING FOR STUDENTS

*Using code examples and Zoom breakout rooms to spark participation*

Getting non-CS majors to more fully participate in a programming lab or lecture is a challenge. In my lab section for PUI in Spring 2020, I found some success by projecting code examples from websites such as W3Schools or from interactive editors such as CodePen, and then **asking students to guess the output** when I ran the code. I also used some **fill-in-the-blank examples** from W3Schools as a low-stakes way to encourage students to risk a wrong answer and volunteer ideas (rewarding with a thrown piece of candy as supplies lasted).

On Zoom, I noticed how much livelier my own meetings became when the group size was small enough to fit everyone on one screen. For my PUI guest lecture on “Designing for Usable Security,” I created breaks in the lecture flow to **put students randomly into groups of four in a breakout room** and discuss prompts such as “What do you personally do to make sure that your data and accounts are safe?” Then, on the return to the group Zoom call, I prompted them to share what they discussed by **typing into the chat window or by unmuting themselves**.

*Helping students finish deliverables by breaking them into pieces*

Human-computer interaction is an applied science - we pull together knowledge from many different disciplines to create computing experiences that people find useful, easy to use and satisfying (or at least not maddening). **Class deliverables, thus, should be a product, service or research publication** that gives them practice with putting HCI theories and concepts into a usable form and that can be used in future applications and interviews. By **breaking deliverables down into weekly assignments or milestones** that represent the steps along the human-centered design process (empathize/define/ideate/prototype/evaluate), and coupling this **with in-class activities that rehearse the needed skills**, I can give students a built-in structure to help them complete the work on time. This also helps me to find out sooner about students’ obstacles to completing the deliverable (such as failing to organize their server-hosted files so that the browser renders them successfully) so that I can help coach them through resolving these obstacles.

With my independent study students, I likewise stress that they should always work toward creating an **artifact** of their research (such as a memo) or **prototype** of their ideas (such as a flow chart) to bring for discussion in our weekly meetings. This helps me give them focused feedback, and it also helps them to keep their desired end goal in sight and to have confidence that it is achievable. We craft a **week-by-week plan** for their semester to guide this work, so that they should always know what is expected of them apart from what I communicate in meetings.

### *Prompting personal reflections and peer feedback*

I see the value of using several techniques to prompt students to reflect on their learning experiences and to present their work to peers. First, I will almost always include a **written reflection component** to homework assignments, where students are asked to list at least 2-3 new concepts that they have learned and how they put these into practice, as well as to tell me what part of the assignment posed the most difficulties or challenges. This not only can give me data for improving future versions of the assignment; it forces the student to think consciously and in detail about what they have learned so that the process becomes anchored in memory.

Second, I ask students in 1:1 meetings and in online channels such as a lab Slack workspace to **summarize what they have worked on** during the past week, and **what they will work on** during the current week. By asking students to describe their expectations and also their output, I guide them to recognizing a mismatch and adjusting their plans accordingly.

Third, I regularly use class times and group research meetings for **“show and tell.”** Students working with me on Social Cybersecurity learn to **come prepared to project a slide or document** and give a 3-5 minute summary of their work since the last presentation. They often **receive more insightful feedback** than from me, simply because other group members are bringing fresh eyes to the work! For Spring 2020 in PUI, it also gave students a look at what the “average” student would be achieving with the project, and a chance to **share ideas** for new features or interactions.

Finally, I encourage students to **find a venue in which to publish their work**, such as a blog, a podcast, a conference, or on personal social media. I nudge my assistants toward **submitting research posters** for on-campus events such as SCS Meeting of the Minds or CMU Privacy Day, and I incorporate deadlines for **external paper submissions** as part of our long-term goals.

## **MODEL PROFESSIONAL EXCELLENCE FOR STUDENTS**

“Show and tell” goes for me too. I join in the brief presentations during group research meetings, and I **highlight my own research and career experiences**, along with laughing at my own foibles and missteps as appropriate, whenever giving a public talk such as a class lecture. This helps students to form a mental picture of what to do (or not to do!) when showing their work.

**My slide decks should always be useful prototypes** for their own communication - focusing attention on 2-3 key takeaways that are stated up front and repeated periodically, using plain language paired with simple illustrations, intermixing concrete, relevant examples with general concepts so that they reinforce each other, and inserting multimedia (videos and audio clips) and stand-and-stretch breaks within long stretches of talking.

I try to **balance the expectations** that I set for students with the **empathy and listening skills** that I hope for from my own supervisors and teachers. I believe in never giving an assignment that I personally wouldn't do, or haven't actually tried to do. To the extent practical, I plan to **pilot assessments** with as much care as I take in preparing protocols and questionnaires for research.

Finally, I do not feel that I should monopolize the lectern. I schedule **guest speakers** for lab meetings to help our assistants to draw connections between their own work and that of other scientists and practitioners. I likewise see the value of recruiting and incorporating guest speakers in the classroom to offer new perspectives and provide different models of work.