
New Old Design Education: Expanding Design Knowledge to UX Practice

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Abstract

We reflect on challenges in teaching UX in design schools and discuss the potential of expanding graphic design knowledge to UX practice by showcasing UI/UX patterns crafted in particular visual representations. We propose to develop a design knowledge base for UX education and practice with three provocations to encourage critical exploration of alternative UI/UX forms and support individual learning and multi-disciplinary collaboration.

Author Keywords

Design knowledge base; UI/UX education and practice.

CSS Concepts

• **Human-centered computing~Interaction Design**; *Systems and tools for interaction design*

Introduction

The rapid evolution of digital technologies, tools, and UX concepts has brought challenges for UX practitioners, educators, and students to keep up with emerging skills and competencies required for UX practice. UX has become a dominant field of practice in HCI to understand and translate user needs into digital products and services. In both fields of UX and HCI, design has become an umbrella term to encompass studio-based, solution-driven approaches to align

digital technologies with human needs and contexts. While designerly practice and pedagogy have been widely applied to new HCI and UX curricula, attempts are also growing to expand traditional design education to HCI and UX practice in design schools that have historically focused on training form-making skills with craft foundation. Instead of developing a new curriculum, design schools could leverage their historical foundation and disciplinary knowledge to specialize their program for HCI and UX education. In this position paper, we reflect on challenges and opportunities in incorporating UX concepts and skills in graphic communication design studio courses and discuss three perspectives to frame (graphic) design-oriented UX practice and education.

UX/UI Education in a Design School

We reflect on our experience of teaching UX to address challenges in UX education of the School of Design at University of Cincinnati. The school consists of three undergrad programs (Communication, Fashion, and Industrial) and Master of Design program. UI/UX design is implicitly incorporated in different ways in each program (e.g., digital product ecosystems, information design systems, user research). The first author is an Associate Professor in the Communication Design program with 8 years of teaching experience; the second author is a Master of Design candidate and a Graduate Student Instructor with a background in Communication Design. Based on our experience of teaching and learning UI/UX, we share the following challenges:

- User-Centered Design methods have become a dominant norm but could limit critical exploration of aesthetic and sociocultural values of UX applications. How could we frame alternative approaches to

encourage critical exploration of novel UX beyond meeting user needs for optimal task completion?

- Today design tools and heuristics become outdated quickly. Too many skills, tools, and sociocultural trends come and go. How does one keep up with them? Could we apply or expand graphic communication design knowledge to design with emerging UI/UX technologies (e.g., VUI, VR/AR, Machine Learning)? What may be new fundamentals to frame and evaluate UX education?
- The gap between UX practice and education has been a sustained challenge due to limited access to data from UX practice and end-users for design ideation, simulation, and evaluation. How could we develop expertise of digital form-making in consideration of and connection to UX practice?
- Learning new UX skills and knowledge often takes place in online courses and loosely formed learning communities. However, skill-oriented design education has limitations in developing the in-depth understanding of UI/UX patterns [4]. Learners from various backgrounds could feel confused with their professional identity [3]. How could we support individual learning with shared disciplinary rigor?

Three Provocations in UX Education

Previous studies on UX education categorized form-making related skills and knowledge as a separate skillset from other UX competences (e.g., *visual/interactive representation* [6] and *perceptive features* [9]). However, based on the challenges above, we propose three approaches to provoke current UX education in design schools by showcasing how visual representations could be critically explored and crafted to address unique UX concepts and values.

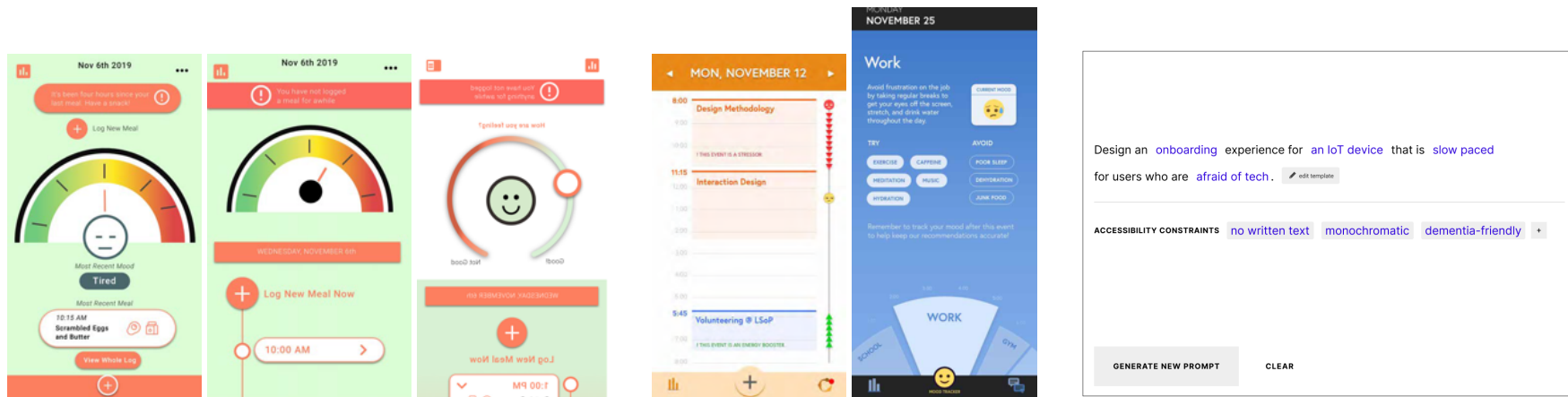


Figure 1: Iterative interface explorations (v1, 2, 3) for food journaling entry to avoid quantitative measurement or judgment on food consumption (Sarah Morton, 2019)

Figure 2: Iterative interface explorations (v1, 2) for schedule-based emotion tracking not to make the scheduler interface look like existing calendar applications so that the users would not feel overwhelmed by their packed schedule and focus on their emotions for each scheduled event respectively. (Sarah Wojciechowski, 2019)

Figure 3: interface prototype for a randomized design prompt generation tool to encourage UI/UX design explorations with design-oriented, diversity-driven variables: <https://aksh.at/experiments/ux-prompt-generator> (Heekyoung Jung & Akshat Srivastava, 2020).

1. New Fundamentals for Exploring and Crafting UX

It is a common practice to pick and choose standardized UI components and interaction patterns in UX practice and education, mostly for optimal task completion. However, UI and interaction components could further be crafted and explored to represent abstract UX concepts and goals beyond being efficient (Figure 1 & 2). We propose that *unlearning of standardized UI/UX patterns could enrich UX education and practice*, and raise questions regarding what may be new design fundamentals for crafting UX and how to support the critical exploration of alternative value-oriented UI/UX design with a flexible tool [2].

2. Knowledge Base for Individual Learning

Such variations of basic UI/UX patterns could be archived as a knowledge base for individual learning by showcasing how the same set of design requirements

could be executed with a variety of UX/UI solutions in different contexts [1]. As communities of UX practice become diversified and expand to different application domains, such a knowledge base could support guided individual learning beyond the mastery of technical skills. Also, they could provide an interesting set of UX challenges so that design schools could focus on critical form-making (Figure 3) [7][8] instead of spending too much time on generative user research.

3. Community and Real-World Engagement

A scalable UX design knowledge base could serve as a platform for UX education as well as collaboration between education and practice. A UX project could be strategically defined to share different skills and knowledge between multiple disciplines (e.g., graphic design and information technology in Figure 4), ideally to solve real-world problems through community

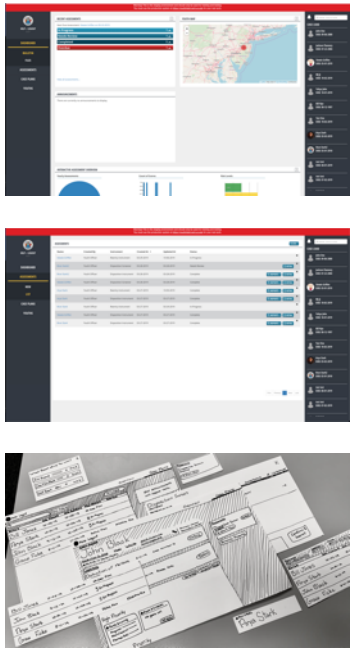
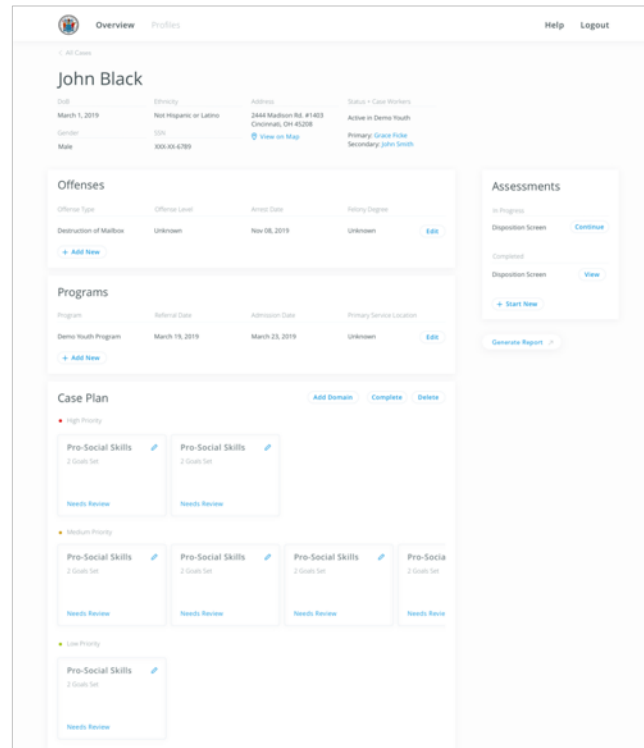


Figure 4: Collaborative project between an interaction design studio and IT Solution Center at University of Cincinnati to analyze the current criminal risk assessment system (above) and re-design it through task analysis and iterative prototype tests (right: designed by Grace Ficke, 2019). The process demonstrates graphic design knowledge is not limited to resurfacing visual representations but could reframe UX by re-prioritizing user goals, re-structuring task flows, and communicating new UX values.

engagement. Sharing different views and processes, instead of too much emphasis on project outcomes, would enrich UX knowledge with various patterns.



Discussion

By proposing the three provocations, we aim to showcase how standardized UI and interaction patterns could be reconsidered through the lens of digital form-making. They are not to argue all UX practice should be equipped with graphic design expertise. We will discuss further how design knowledge could be integrated into UX education and practice (or whether it should at all).

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