Global HCI Curricula: The Case for Creativity

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ABSTRACT

This paper makes the case for the inclusion of experimental creative practice within global HCI curricula. The interface between HCI and creative practice is often found in the discipline of user experience design where students are trained in the various methods, approaches and techniques of designing for digital systems, objects, and interfaces. User experience design has traditionally been seen as at the service of both the people who are intended to use a digital product and the business objectives of the commissioning organisation. Most recently, this has led to a number of negative consequences including the emergence of surveillance capitalism, a flattening of creative possibility, and an arguably damaging prioritisation of human needs above all others. In order to revitalise the discipline, this paper suggests that HCI education needs to widen its scope to encompass conceptual risk taking through several approaches that we detail.

INTRODUCTION

Uber deliberately avoids regulation by using secret software to circumvent the law [10]. Facebook experiments on users without their consent, shares user data with a political consultancy to subvert democracy, and knowingly encourages minors to spend their parents' money without their parent's knowledge [4]. Twitter is transformed into a raging storm of hate speech [11], while WhatsApp allows victims of violent crime to be traced directly to their front doors, behind which pre-teen children are exposed for hours per day to algorithmically generated sexually explicit videos on YouTube [2]. By any measure, something has gone seriously wrong with the most popular digital systems, used by over 42% of the global population [12]. HCI education must assume some responsibility for this. The relentless drive to deliver shareholder value, or fuel the start-up economy has resulted in a gross perversion of user centredness and optimisation, long treasured cornerstone values of HCI. HCI education needs to prepare the designers behind the creation of interactive systems to look beyond data-first paradigms, question established methods and frame all that they do from the perspective of potential unforeseen consequences.

KNOWLEDGE PARADIGMS

HCI as a creative discipline has often been subservient to the insight delivered by computational data analysis. One result is the extreme personalisation and recommendation engines that drive the digital economy. A key factor here is the contrasting knowledge paradigms of data science and design. In broad terms, the former values quantitative measurement, statistical generalisation, and algorithmic processing. The latter, in stark distinction, values qualitative knowledge as derived from a rich suite of research methods intended to reveal the conditional, subjective, and human-centred characteristics of a human-machine situation. These two epistemological viewpoints integrate in the study of human computer interaction.

A brief glimpse at the compulsory modules of some of the world's leading HCI courses reveals the following topics; interaction science, interaction design, evaluation methods and statistics, mobile computing, HCI theory, psychology research methods, usability research techniques, prototyping and evaluation, cooperative software development. Design is understood in this context to consist of the iterative development of interactive systems in response to user evaluation. Where design features as a core curriculum subject (and this is by no means ubiquitous) the emphasis is on the mechanics of interaction, i.e. where to place screen items, how to structure information, which affordances to emphasise when in order to maximise efficiency. The integration of knowledge paradigms in HCI curricula thus remains dominated by a data-first, quantitative approach. Creative exploration or experimentation is rarely mentioned or understood in HCI curricula. This is perhaps one reason why much of the digital product ecosystem looks, feels and interacts the same, representing a potentially vulnerable lack of resilience to exploitation and abuse.

The authors have developed a curriculum which aims to counter this. From the very beginning of the MA in User Experience Design (MA:UX) at London College of Communication, students are
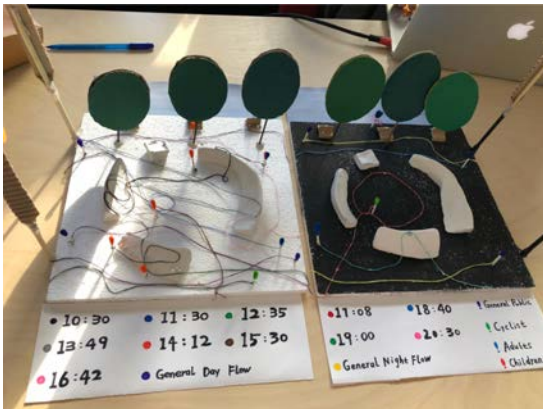
set constraints. Restricting, for example, the production of apps, virtual reality experiences and drone services, encourages the students to think beyond specific technologies or systems and to inform themselves of current and historical work in art and design that draws on radical experimentation and exploratory methods. This is not to say that we abandon the more traditional, quantitative methods mentioned previously. However, we recognise that their benefits must coexist with these more creatively investigational methods. We include examples of work from the course throughout this paper.

Figure 1: An experience map influenced by William Whyte's The Social Life of Small Urban Spaces
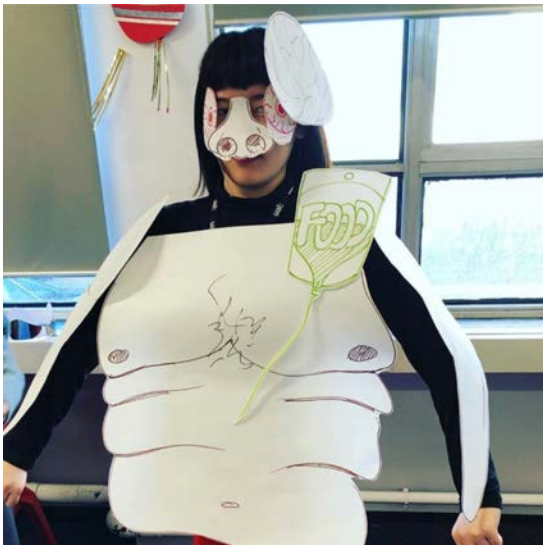
Figure 2: A performed representation of the effects of sleeplessness on the future human self

POSTHUMAN HCI

HCI curricula globally remain in the grip of a human-centred view of the world. One in which human actions are predictable, and are reliably guided towards consistent outcomes through careful manipulation of signs and signifiers. Human needs and requirements are seen as of overriding importance in the creation of situations where people interact with computers. Forlano (2017) traces the influence of posthumanism on design and the emergence of a new definition of subjectivity [3]. This definition is not predicated on the individualised, neoliberal human consumer, but is instead inclusive of non-human agency in the form of machines, systems, and organisms. Indeed, across the social sciences, the direction of research has been towards a de-centring of the human in favour of an entangled view of socio-technical systems, one that accounts for computational intelligence, species loss, augmented bodies, and sensing spaces. In contrast, HCI curricula are still predominantly designed to deliver an education based on human needs. Thrift (2011) describes this as contributing to a situation where 'human object assemblages are elevated to a place of higher significance in terms of making sense of the world', implying that a more sophisticated understanding would be to value the interdependence of nature and culture [9]. To catch up, HCI curricula are in urgent need of an update.

As computational intelligence systems start to pervade everyday life, they present a challenge to human understanding. We risk developing highly influential technologies of such complexity and opacity that they surpass our abilities to shape them into forces for the common good. The consequences for culture and society are profound, as noted by Holmquist [5]. Firstly, the ethical implications of personal data that is captured and used to train an algorithm, designed by a private corporation for commercial purposes involves an imbalance of power. Secondly, the invisibility and opacity of machine learning technologies means access to the means of production is limited to the few people trained and skilled in creating them. Finally, the conscious or automatic manipulation of flows of information via digital products has been shown to be a danger to democratic processes and information equity [1].

An HCI curriculum reconfigured to account for some of these imbalances would not only help to place humans in a wider ecosystem of technology relations, but would also help to plan for an increasingly unpredictable planetary future. One way we encourage posthuman thinking on MA:UX at London College of Communication, is by consistently asking students what their design implies for bacteria, machine learning algorithms, or future generations (see Figure 2). This is intended to be an act of projective imagination.

Figure 3: Representing Kubler-Ross' stages of grief as a physical narrative

Figure 4: Presenting research outcomes through roleplay

METHODS

Audre Lorde's famous phrase 'the master's tools will never dismantle the master's house' [7] evokes the stifling orthodoxy of research and design methods in HCI. This has been noted by many scholars and by the most prominent contexts for HCI research (not least CHI itself) in a consistent valuing of innovative methods in new research. This drive towards methodological invention notwithstanding, HCI curricula do not seem to reflect current thinking. In other words, if we wish to invigorate HCI curricula, specifically where they seek to elicit creative design, we will need to challenge some of the dominant methodological assumptions of the discipline. To take a specific example, HCI curricula assume that existing techniques for user evaluation can sufficiently enrich an understanding of the long term ethical and political consequences of technology development. However, we argue that these techniques are limited in diversity and need to be re-evaluated.

On MA:UX, the pedagogical approaches we use in this area encourage students to develop methods for themselves. Students explore a wide range of design research and data analysis methods before integrating aspects of the ones most suitable for their given design situation. We place great importance on the narrativisation of research findings; students must be able to structure the investigation story of their project in a way that reveals the methods they have used and why. We also ask them to explain what they have done to explore the creative possibilities of the research situation. This often takes the form of performative explanation in presentations to the class. We benefit greatly here from the wider context of the University, which comprises a diverse community of practice across many creative disciplines.

Figure 3 and Figure 4 show two research outcomes by students on the MA:UX course at London College of Communication. Figure 3 gives three-dimensional form to Kubler-Ross's stages of grief [6] and creates a sense of time by the passing of a marble from the top to the bottom of the structure. Figure 4 shows a student enacting a role in order to communicate and contextualise research outcomes to the class in a presentation. These two examples demonstrate how encouraging students to use three-dimensional and performative presentation methods can lead to more unexpected and engaging outcomes which begin to bridge the gap between research, experience and making.

UNCERTAINTY

Many HCI curricula feature a very narrow set of concerns in terms of project work. Examples are often limited to healthcare, learning and education, computer supported collaborative practices, information environments, and app design. This has the effect that the practice-based element of an HCI education often fails to reach beyond the functional concerns of efficiency and optimisation for products and services across just a few fields.

On MA:UX at LCC we intentionally focus student work away from work that values optimisation and efficiency and towards more exploratory topics such as the UX of conversation, or the UX of time. This is in direct response to our industry partners, some of the most successful London technology companies and agencies, who despair of HCI graduates unable to see beyond a

Figure 5: A candy time-keeper resulting from research on the UX of time
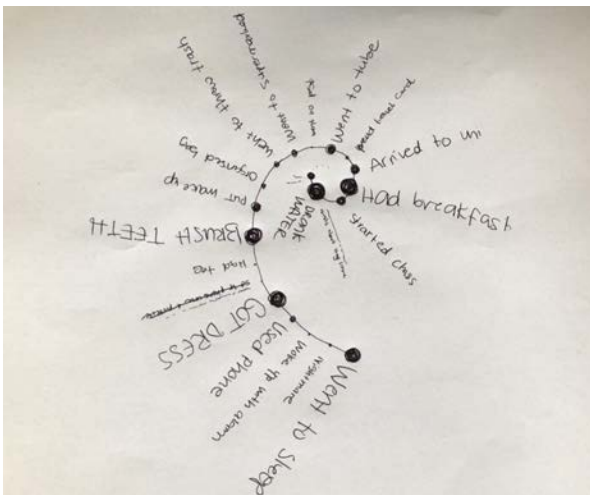

Figure 6: A self-generated learning trajectory diagram

marketisation model for new technologies or an understanding of the relationship between people and computers based on the monetisation of data.

HCI education tends to adopt a deterministic view of technology. This is shown by the emphasis on mobile interfaces, usability testing and interaction design in HCI curricula which prioritises the relentless search for 'solutions' to 'problems'. Many of the systemic issues faced by society such as climate change, inequality, civil conflict, and access to education are not new, many are getting worse, and have not diminished significantly. As Morozov has pointed out, the current configuration of human-technology relations has proved to be an efficient enabler of dictators and a megaphone for marginal and extreme views [7]. The regime of power relations brought about by individualising computational technologies threatens many treasured freedoms, not least privacy and democracy. HCI curricula should respond to this by emphasising uncertainty and possibility, what Akama et al. call the 'ongoingly emergent' nature of the world [8]. We do this on MA:UX by asking students to consider the ephemeral, temporary and unstable nature of digital media in general, and their designs in particular.

COMPETENCIES

HCI is a convergent discipline, it encompasses quantitative measurement, creative experimentation, sketching, interaction design, evaluation, computer science and more. Although HCI curricula do tend to cover these bases, they do not explicitly account for the balance of abilities that HCI graduates may bring to the workplace. This can lead to skills being under-emphasised or underdeveloped.

On MA:UX we deploy a kind of competency model to overtly highlight and reflect on learning outcomes. Students complete a matrix of competencies at the end of every study unit. Thus, as they progress through the course, this matrix reveals areas of strength. By the end of the course, students have a good sense of the specific elements of the discipline they wish to pursue. In this way, students can take control of their own learning outcomes and position themselves for life after graduating. We have also departed from the prescriptive format of the typical competency model and asked students to create individual representations of their own learning which have often taken three-dimensional form. By structuring progress through the lens of competencies we allow students to follow their natural inclinations towards, say, research or interaction design. The opportunity to represent their own learning trajectory has also given students the ability to reflect on, and take responsibility for, their own study. This self-awareness means that they can assume specific roles in collaborative work, and contact future employers with a clear idea of their abilities.

ABUSABILITY

The emphasis on usability in HCI reflects its emergence from engineering disciplines. Usability is seen from the perspectives of technical function and psychological operability. These two understandings, which both aim to configure the relationship between people and computers, are what HCI curricula seek to integrate. Thus, it is no surprise that attention to these facets of the discipline comes at the cost of the moral, political, and ethical qualities of computational systems.

Figure 7: Critiquing biometric measurement

We address this on MA:UX by asking students to carry out an abusability audit of their projects. This involves asking a set of questions that engage various categories such as privacy, exclusion, control, diversity, and consequences. For example, by asking who is excluded by a design, or what the implications for personal data privacy are, students are able to predict possible negative outcomes or harm to users. In this way, students gain an awareness for the wider environment in which their work will exist and can thus design their outcomes accordingly.

CONCLUSION

As technological systems have an ever-increasing influence on daily life, yet become ever more opaque, HCI education has never been so important. It needs to prepare the designers of the future to positively impact the systems and services that will shape culture and society. This paper has promoted the need for a radical rethinking of HCI curricula in favour of the inclusion of experimental creative practice. We have used examples from the MA User Experience Design at London College of Communication to illustrate our approach. We have proposed that by taking HCI study away from the traditional focus on optimisation and efficiency, and promoting a creative, exploratory and reflective process, that the outcomes will become more diverse, ethical and inclusive. We have also shown how we seek to give students not only an awareness of the context in which their work will exist, but also an understanding of their own skills and their role in interdisciplinary teams. In a discipline that promotes innovative methods, HCI must also look to invigorate the curricula that will determine its future.

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