
The Isolated Practitioner

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Abstract

Over the past few decades, a community of researchers and professionals has been advancing the art and science of interaction design. Unfortunately, many practitioners are isolated from this community. We feel that the lack of a relationship between these isolated practitioners and the human-computer interaction community is one of the greater challenges in improving the overall quality of interaction design in the products and services used by our society. In this position paper, we describe how this isolation arises. We then propose ways to improve the connection between the HCI community and these isolated practitioners. These include early HCI instruction in the undergraduate curriculum, establishing HCI certificate programs, utilizing new media to summarize and disseminate important HCI results, highlighting accomplishments in interaction design, and performing other forms of outreach.

Keywords

HCI education, community, practitioners, outreach.

ACM Classification Keywords

K.7.0 [The Computing Profession]: General, H.5.0 [Information Interfaces and Presentation (e.g., HCI)]: General.

Introduction

The community of human-computer interaction (HCI) researchers and practitioners has been advancing the art and science of interaction design for several

Causes

- HCI is Only One of Many Concentrations
- The Myth of the Authoritative Text
- A Limited Design Vocabulary
- Unfamiliar Management
- Domain Knowledge Comes First
- Misunderstanding the Qualifications
- Assigning the Most Junior
- Unrivaled Expertise
- Time and Resource Constraints

decades. This community has developed a vibrant body of knowledge, practice, and inquiry. Unfortunately, there are a number of practitioners who are isolated from HCI as an organized discipline and this corpus of knowledge. For example, one of the authors met a developer, in charge of user interface programming on a major consumer electronics product, who was unfamiliar with principles of information encoding, i.e. using size, shape, color, position, etc. to represent quantitative data. In this paper, we describe the individual and organizational factors that contribute to such isolation. We then provide suggestions for how the HCI community can sidestep these issues in order to reach out to these isolated practitioners.

Causes: Isolated Individuals

HCI is Only One of Many Concentrations

The growth of the computer science field has resulted in an explosion of sub-fields and sub-areas. With courses in intelligent systems, computer graphics, visualization, databases, algorithms, web technologies, software engineering, and others, it is not surprising that university students may not get around to courses in HCI. Thus, even highly educated professionals, who are talented developers, may have little exposure to HCI design methodologies.

The Myth of the Authoritative Text

More than one student has exclaimed that everything he needed to know about software engineering was contained in the *Mythical Man Month*[2]. Authoritative texts are a tradition in computer science, (e.g. *Interactive Computer Graphics*[4] or the *Dragon Book*[1]). While there are several good introductory HCI texts (e.g. DFAB[3], Preece[7], Shneiderman[8], and others), these do not enjoy a high level of recognition in the larger computing field. In any case,

the notion of an authoritative text is difficult to justify with pace of change within computer science. It is also naïve to assert that a single source can provide all the knowledge needed for a successful career in UI design, particularly considering that the HCI design field is informed by a number of different scientific and engineering disciplines.

A Limited Design Vocabulary

Isolated practitioners may possess only a limited design vocabulary for interaction. Since the desktop computer has become so pervasive, the WIMP (Windows, Icons, Menus, and Pointers) design metaphor has, in the minds of many, become the single best way to craft an interface. Many isolated practitioners are thus not exposed to a wide variety of interface designs. When confronted with a design problem, they may only be able to provide a limited set of design options, which may be ill fitting. A limited design vocabulary is a serious handicap for the isolated practitioner.

Causes: Isolated Organizations

Unfamiliar Management

Managers, in many companies, may not have exposure to UI design, or even software engineering. This leads to insufficient planning for UI design, implementation, and testing. This lack of exposure often occurs in companies where interaction design is not a key corporate focus, for example, a manufacturing firm. While industrial design may be a concern, interaction design may be a misunderstood second cousin to industrial design. In such a company, UI designers and software engineers may not be very numerous, have less connection to key areas of corporate expertise, and be less frequently considered for management.

Solutions

- Outreach beyond the HCI Community
- Utilize New Media
- Exemplars of Good and Bad
- Early Curriculum Exposure
- Certification Programs

Domain Knowledge Comes First

Equipment vendors often need their developers to have intimate domain knowledge related to the products. This often precludes hiring a full-time, specialist user interface designer.

Misunderstanding the Qualifications

Some hiring managers and project leads believe that good programmers also make good interaction designers. While there is some overlap in skill sets; sadly, even excellent programmers are not likely to know important interaction design considerations, prototyping methodologies, and testing techniques. Another misperception is that a talented computer graphics programmer equals a talented UI developer. While user interfaces are often graphical, there is much more to interaction design.

Assigning the Most Junior

Since management may not understand that there are important concerns and skills required for good interaction design, user interface programming is often outsourced or otherwise assigned to the most junior developers. With the interface being one of the most consumer-facing of all elements, it is odd that the least experienced developers are placed on these tasks.

Unrivaled Expertise

In some projects and organizations, there is only room for a single user interface designer/developer. Relative to the rest of the company, that designer is unrivaled in expertise, but obviously, this might not be very meaningful. It is difficult to know if that designer is truly skilled in UI design or merely skilled in comparison to others at the company. Complacency and insular design may also result without discussion and constructive criticism within a pool of peers.

Time and Resource Constraints

Applying good design methodologies with the aggressive scheduling that is often seen in product development can be difficult. These time constraints can be particularly arduous when the user interface is not (or perceived not to be) the main focus of the product. Resource issues also emerge around the effort and infrastructure required for evaluating UI designs. Such testing requires representative users, representative tasks, interfaces under consideration, and tools to make sense of the test data. Products for international markets may also require cross-cultural teams for intercultural vetting. Small organizations may not have the resources for such efforts. Some organizations conclude that interaction design is a luxury. In these situations, it may be hard to advocate that refining products for usability will be worthwhile.

Solutions

In response to the numerous issues which contribute to the isolation of practitioners from the larger community of HCI, we suggest the following measures, and welcome additional ideas.

Outreach beyond the HCI Community

The individuals who would most benefit from attending CHI are likely not the ones who do come. The isolated practitioners and managers do not attend, due to time constraints, lack of awareness, and other issues. We suggest that SIGCHI bring usability related content to the conferences and meetings that these individuals do frequent, i.e. developer meetings, project management courses, and executive management seminars. Just as quality control and ethics are part of the MBA curriculum, user focused design should be part of MBA programs, project management programs, and internal corporate education.

Utilize New Media

We suggest thoughtful utilization of new media. The impact of Johnny Chung Lee's YouTube Wiimote videos[5] demonstrated how new media can be an effective adjunct to the proceedings and journals that are the mainstay of HCI communication. Conference submissions currently require an abstract and a set of key words, optimizing the submission for print media and simple searches. A much wider audience could be reached if submissions had features like an HCI wiki entry, a concise video, an interactive web demo, and content scalable for blog entries or Twitter[10] messages. An authoritative wiki on HCI, administered by SIGCHI, member-written, and publically viewable, could also be used to disseminate results. A series of humorous, but informative articles highlighting good or bad examples of HCI design would be well received on developer frequented sites such as Slashdot[9].

Exemplars of Good and Bad

With these new media channels, we suggest that SIGCHI create an independent body to examine products and services for usability issues, highlighting the best in user interface design, as well as to warn against the worst. This would be akin to an *Underwriter's Laboratory* or *Consumer Reports* for interaction design, and would provide useful data to interaction designers, project management, and the general consumer. Furthermore, such content could be used to help broaden the design vocabulary of isolated practitioners through a series of HCI design atlases (either in print or online) that show examples of interesting design.

Early Curriculum Exposure

Our hope is that undergraduates will not leave college without a basic understanding of usability and interaction design. We recommend that HCI and

interaction design material should be placed early and firmly into the undergraduate curriculum. A unit on these topics should be given as early as freshman year since many undergraduates are already programming when they enter college. Furthermore, the HCI curriculum should not be limited to computer science and psychology departments since other fields, such as anthropology, business, and the humanities, for example, are key to HCI's fundamentals.

Certification Programs

To help create corporate awareness and reinforce the value of an HCI skill set, we propose the development of an HCI certificate program. This would be similar in many ways to software engineering certificates or corporate sponsored curricula like the Oracle Certification Program[6]. Such a certificate program would be useful since an HCI master's or HCI PhD may be too much of a time/money commitment for some. Furthermore, a certificate would help demonstrate that HCI skills are a valuable differentiator to job seekers and employers.

Conclusions

While many companies and individuals successfully introduce goods and services that demonstrate good interaction design, there are still pockets of isolated practitioners who could benefit from a closer relationship to the HCI community and its established body of knowledge and practice. We feel that outreach, strongly led by SIGCHI and the HCI community in general can address the individual, organizational, and domain challenges that have set these practitioners apart.

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