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Teaching the Next Generation of Child-Computer Interaction Researchers and Designers

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Abstract

Despite the Child-Computer Interaction (CCI) community's rapid growth in the past two decades, there has traditionally been less focus on developing a curriculum to teach CCI to students. This entails a risk for a gap between the accumulation of knowledge and the transfer of this knowledge to new generations of researchers and designers. Building on previous workshops organized at IDC 2011 and 2014, the goal of this workshop is to gauge the current state of teaching CCI to undergraduate, graduate and doctoral students. More specifically, the workshop aims to re-evaluate previous lessons learned, stimulate reflection on best practices, facilitate an exchange of knowledge, and provide a forum for international collaboration. The envisioned outcome is a blueprint for a CCI curriculum that can be taught anywhere in the world.

Author Keywords

Child-Computer Interaction, Curriculum Design, Teaching

CSS Concepts

• **Human-centered computing**~**Human computer interaction (HCI)**; HCI theory, concepts and models

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Introduction

In less than two decades, the field of Child-Computer Interaction (CCI) has reached a certain degree of maturity by establishing its own conference in 2002 and a journal in 2013. Since the early days, CCI has grown extensively and has raised awareness of the needs of children in the design of technology beyond its borders into related research fields and industry [10,31]. Despite CCI's rapid growth, there has traditionally been less focus on developing a curriculum to teach CCI to students. This entails a risk for a gap between the accumulation of knowledge and the transfer of this knowledge to new generations of researchers and designers. Moreover, as the community and its international outreach grow, the initial common ground, shared vocabulary and literature could get lost. Despite previous efforts to address this gap and develop a CCI curriculum [e.g., 6,14,25], we believe it is timely to organise a follow-up workshop and gauge the current state of teaching CCI to undergraduate, graduate and doctoral students (e.g., course programs, ethical challenges, key readings, issues around assessment). Knowing that there is no one good way of teaching CCI, this workshop aims to bring together educators, researchers, designers and practitioners with an interest in teaching CCI or related subjects. During the workshop, we will map out current teaching practices, previous experiences and ideas for the future. The workshop will result in a blueprint for a CCI curriculum that can be taught anywhere in the world.

Background

In the field of Human-Computer Interaction (HCI), the discussion on teaching has been going on for a few decades and dates back to a workshop organised at CHI 1985 that resulted in a HCI curriculum defining core topics

within disciplinary fields [21]. A number of new workshops, panels and papers on teaching HCI followed in the years thereafter, which indicates that this is an ongoing debate [e.g., 3,13,15,20,21,23,24,24,29].

Albeit more recently, a similar discussion has been going on in the field of Participatory Design (PD). A paper by [20] describes the content of a course on PD and students ambivalent reactions to this content. They were both fascinated by the possibilities of PD and sceptical about the informal nature of PD practices and the extent to which PD leads to better systems. Another paper by [9] presents a course on PD that was designed with and for students to overcome the usual asymmetry between instructors and students based on an uneven distribution of power. More recently, [8] reflected on the implementation of Schön's concept of a reflective practicum via live projects in a PD course that has run for many years. They discerned teaching issues related to both the course content (e.g., the urgency of rapid commitment of participants) and inherent to learning PD (e.g., feeding forward results from one design encounter into the next), and conclude with suggestions to further improve their teaching approach.

In the field of CCI, which is closely related to HCI and PD [34], the debate on teaching surfaced at the start of the previous decade. CCI was, and is, taught in different ways around the world, including conference courses [e.g., 1,19,28], university courses [e.g., 12,15,16], summer schools [e.g., 2], and numerous guest lectures. In addition, [22] developed a textbook about CCI that covers a wide range of topics including, but not limited to, the history of the field, child development, creativity and problem solving, usability for children, and health and special needs. Another book by [26] has a more narrow

focus and provides detailed instructions for evaluating children's interactive products, richly illustrated by case studies.

Despite these textbooks and ongoing teaching practices, only a few attempts have been made to explicitly address 'how' to teach CCI to students, and to stimulate discussion and the sharing of knowledge in the community. [18] were the first to organise a workshop about this topic at IDC 2011. The goal of the workshop was to explore the various ways in which CCI is taught and to define core principles for a CCI curriculum that accounts for the multidisciplinary nature of the field. They suggested a flexible approach to teaching CCI that integrates four different perspectives but with varying emphasis depending on the context: a disciplinary, technology, user-experience, and research and design methods perspective. A few years later, another workshop was organised by [7] at IDC 2014 that served as a forum for exchanging best teaching practices and encouraging international collaboration.

Both workshops resulted in a number of publications on teaching CCI in the years thereafter [e.g., 2,5,6,10–12,25]. [29] discussed decisions about the content and goals that went into the design of several CCI courses. The topics of these courses reflect 'the nature of CCI' [30] and include, among other things, the differences between children and adults, accessibility and ethics, novel interaction techniques for children, gathering requirements, and evaluating products with and for children. Building on this work, [11] suggested a 'constructively aligned approach' to teaching CCI. They argued that, to facilitate students' meaning-making, CCI topics should be aligned with teaching methods and learning objectives. The objectives should be stated in

such a way that it is clear to students what skills and knowledge they should be able to demonstrate after the course, and the teaching practice should be designed to help students to reach these objectives [5]. In a follow-up publication, they discussed how they applied the constructively aligned approach in a CCI course and what lessons they learned [12]. A key lesson is that, compared to previous courses, the approach improved students' domain-specific knowledge about CCI and practical insight for working with children, but it did not necessarily improve the novelty and quality of students' designs. Other papers on teaching CCI focused on bridging the gap between child development theories and interaction design [3], and on training students to design for vulnerable populations in a quest for more inclusive design [6].

This overview shows that there are experiences to build on and that we do not have to start from scratch every time a new teaching module on CCI should be developed. However, in the past five years, no new initiatives and publications emerged on teaching CCI. In addition, the nature of children's interactions with technology has changed rapidly (e.g., more mobile, use of voice assistants and internet of things technologies), which may affect teaching practice. Therefore, we believe it is timely to organise a follow-up workshop on teaching CCI to undergraduate, graduate and doctoral students. The aim of the workshop is to re-evaluate previous lessons learned, stimulate reflection on best practices, facilitate an exchange of knowledge, and provide a forum for international collaboration. We invite people from different disciplines with an interest in teaching CCI to submit descriptions of teaching practices (e.g. course program, key readings), experiences they had (e.g., ethical challenges, issues around assessment), and/or novel

ideas for training the next generation of CCI researchers and designers. Of special interest are accounts of how CCI topics are, or can be, aligned with learning goals, relevant theories, good assignments, and didactic principles. During the workshop, we will first map out these practices, experiences and ideas to find a common ground and, afterwards, develop a blueprint for a CCI curriculum that can be taught anywhere in the world. Given the multidisciplinary nature of CCI, this curriculum will have to be tailored to the specific context such as the school and particular program, the background of the students, the expertise of the instructors, and the available time and resources.

Workshop Outline

Before the Workshop

We will distribute the Call for Participation via personal contacts, social media and mailing lists. All educators, researchers, designers and practitioners with an interest in teaching CCI or closely related subjects are welcome to submit a position paper. In their position papers, authors should describe teaching practices (e.g., course program), experiences they had (e.g., ethical challenges), and/or novel ideas for teaching CCI. Of special interest are ideas about the alignment of core CCI topics with learning goals, relevant theories, practical assignments, and didactic principles. Position papers have to be sent to mvanmechelen@cc.au.dk by the 13th of April, and authors will be notified of acceptance or rejection no later than the 20th of April. Participants will be selected by the organisers based on the quality and contribution of their position paper. The expected number of participants is about 15 people, including some of the organisers. Accepted position papers will be published on the conference website if agreed upon by the

authors. Selected participants will be instructed to read another participant's position paper in preparation of the workshop.

During the workshop

The workshop is planned for a full day and will be hands-on from start to end, meaning that participants do not have to prepare a formal presentation. At the start of the workshop, participants will break out in groups of 4 to 6 people. First, participants will explain and discuss each other's position papers (see preparation) and, afterwards, they will map out the content of the papers (i.e., teaching practices, experiences and ideas for the future). In the second part of the workshop, the groups will present the results of this mapping exercise to the other groups. Together, all groups will then develop a blueprint for an international CCI curriculum including learning objectives, core topics, relevant theories, practical activities, key readings, and didactic principles. The workshop will conclude with a discussion of open challenges (e.g., how to tailor the blueprint to different contexts) and next steps to be taken. The detailed workshop schedule will be published on the website.

After the workshop

We will publish a workshop report in ACM Interactions or a similar magazine. Depending on the interest of the participants, we will furthermore arrange a special issue on teaching CCI in the International Journal of Child-Computer Interaction (IJCCI). Another possibility is a joint article based on the discussions during the workshop. It is our intention to use the workshop website for continued work and events, and we will organise a follow-up workshop a few years from now to keep the discussion and knowledge exchange going.

Organizers

The organizers represent six universities in five countries (Denmark, the UK, Israel, the Netherlands, and the USA), and have been active members of the CCI community for many years. Their backgrounds reflect the multidisciplinary nature of CCI and include computer science, humanities, design and education. All organizers have relevant teaching experience in CCI and/or closely related subjects such as Design for Play, Human-Computer Interaction and Game Design, both on an undergraduate and graduate level, and have in common the belief that children's interests should be represented in the design of technology. Some of them have also published about teaching Child-Computer Interaction, and were involved in organizing CCI courses at academic conferences. Two of the organizers, Shuli Gilutz and Eva Eriksson, have conducted workshops on teaching CCI during IDC 2011 and 2014. For further information about the organizers, please consult the workshop website.

Call for Participation

Despite the Child-Computer Interaction (CCI) community's rapid growth in the past two decades, there has traditionally been less focus on developing a curriculum to teach CCI to students. This entails a risk for a gap between the accumulation of knowledge and the transfer of this knowledge to new generations of researchers and designers. Building on previous workshops at IDC 2011 and 2014, the aim of this full-day workshop at IDC 2020 (June 21, London) is to gauge the current state of teaching CCI to undergraduate, graduate and doctoral students. We invite people from different disciplines with an interest in teaching CCI or closely related subjects to submit a

position paper via email to mvannechelen@cc.au.dk by April 13th outlining the following:

- Short biography with focus on teaching experience, if any (ca. 150 words)
- Description of teaching practices, experiences and/or ideas (1 to 2 pages), including but not limited to:
 - Course topics and learning goals
 - Student assignments
 - Didactic principles
 - List with key readings
 - Ethical challenges related to teaching
 - Assessment practices
 - Novel teaching ideas

Of special interest are ideas about aligning core topics with learning goals, relevant theories, good assignments, and didactic principles. During the workshop, we will first map out current practices, experiences and ideas for the future and, afterwards, develop a blueprint for a CCI curriculum that can be taught anywhere in the world.

Please note that it is a requirement that at least one author of each accepted position paper must attend the workshop, and that all participants must register for both the workshop and the main conference.

More information can be found on the workshop website: <https://cctd.au.dk/idc-workshop-2020/>

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