
Intentions vs reality - how strategies to create a more diverse HCI course fail

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EXTENDED ABSTRACT

Human Computer Interaction (HCI) needs to be cornerstone of modern education [2, 9]. It introduces students to the multidisciplinary, diverse and sustainable ways of thinking necessary for every state-of-the-art innovation.

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At the university of technology, HCI is taught as an introductory course in the first year to students of computer sciences and as such is the first not purely technical lecture the students are confronted with. We try to design the course to be as accessible as possible to a diverse group of students. One of our main concerns is to reduce the existing disparity between male and female students - currently having only around 20% women registered for computer science studies. However, we try to create a space for students of all genders, sexual orientations, socio-economic and cultural backgrounds to safely work together towards the common goal of learning and developing as the next generation of innovators.

To this end, we systematically implemented strategies that we think might impact diversity in our courses. Some of those strategies are rooted in policies that were actually in place already, only not implemented, others we adapted from literature [3, 4] and published best practices [5]. These strategies are mainly interventions in different layers of the course design:

- Policy: We actively implement the university policy that all hand-ins have to be written using a gender-neutral language.
- Organisation: We offer opportunities for self-directed learning, letting students choose which challenges they want to take on from a large pool of choices and do not enforce fixed deadlines so they have agency over how and when they work [8].
- Technology: We develop our own course environment [7], which gives us the opportunity to choose how our content is displayed, which devices can be used and how students can interact with the lecture topics.
- Course work: We pose design challenges that are open ended with no clear yes or no answers, leaving space for students to develop them in their own style, so called wicked problems [1]. Additionally, we ask students to try to approach them with an open-mind, without inserting certain stereotypes from the start.
- Community of learners: We implemented a double blind peer review system in our course [6]. Students review work of their peers and in turn receive peer feedback on their own work. We hope to create a community of learners who understand the value of different perspectives and teamwork to work towards a better result.

While all of these strategies are well-intentioned and show promise, they all created situations which were less than ideal. For example regarding *policy*, the topic of gender neutral language in a german-speaking country is supercharged with adversary opinions: surprisingly many students feel personally offended having to use gender neutral language and see it as a medium to inflict our own personal politics on them. Ever since we actively implemented this university-wide policy, we had to lead countless discussions appeasing the very vocal, mostly male, adversaries.

Our course *organisation* too led to a number of dissatisfied students. Students are growing up in a school system that does not necessarily teach them to feel responsible for their own learning progress. While we thought that letting them choose their own pace, working how and when they have time, is accommodating for the diverse life-styles they come from, students felt pressured and overwhelmed. Many did not manage to distribute their work sensibly throughout the semester, which led to many drop-outs of the course and many low quality hand-ins in the last few days of the semester.

Technology can only be as good as the data it uses. We had to learn this the hard way: We import official student data from a central server - name, registration number and study number. In our system, students can choose their own nickname to write comments and interact publicly on the platform, so they can hone their own online identity. However, we also ask students to do group work, wherein all names and registration numbers are displayed to the other group members. As a result, our technology inadvertently outed a transgender person to their peers, leading to discomfort and destruction of the safe zone we try to create.

Over the years, we created a large number of *challenges* that students can choose from to complete their course work. Our goal is to address different interests with each challenge, so that students feel more motivated and can better identify with their course work. Additionally, we have created some guidelines on how to write good challenges, for example students are dissuaded from basing their design on known stereotypes in order to generate more inclusive ideas for their designs. This guideline alone, however, resulted in multiple students exclusively using extreme stereotypes in order to "fight the system".

When writing *double blind peer feedback*, students also have to adhere to certain rules of writing feedback, such as productive, positive statements and so on. One rule we continuously have to remind people of is the rule to directly speak to the students they write the feedback for. The reason why we have to insist on this rule is that students keep talking about their peers in third person and in doing so always use the male pronouns "he wrote x", "his work showed y" or "I would advice him to z". While 70% of students might be fine with this oversight, the other 30% feel as though they are out of place reading personal feedback that is apparently not addressed to them.

Overall, we sadly see the tendency for students to rebel against measures we explicitly introduce in order to make HCI education more diverse and inclusive. While this might only adhere to a smaller number of students, this loud and vocal subset creates a hostile environment - something we desperately try to avoid.

We see our role in HCI education as shaping the inventors of the future and so try to enrich their studies with as much diversity as possible. Recently, we have a new opportunity to teach HCI not only to students of computer science, but also in the context of teacher education in a curriculum of educational science. Especially, we organise an inter-disciplinary, inter-university design course that brings students from both studies together to work on design challenges. Since the course has only

started this semester, we cannot disclose details on how well students connect and if the outcomes are effected by such different perspectives.

The main difference we see so far, as one might expect, is the general perception of technology. Students at the university of technology are well-versed in the use of technology and have a tendency to see every design challenged as an opportunity to create a new digital application or technology artefact in one way or another. They however often miss or intentionally leave out the reflective stages of a good design. Students from the educational sciences, on the other hand, are more diverse and polarised in their attitudes towards technology. These attitudes range from wholeheartedly embracing technology to something that can appear as techno-phobia, so they are not as creative in their application of technology and often fail to see its advantages. Combining these two world views is a promising approach to create a more diverse group of designers and future teachers to design technology for the years to come.

In the workshop, we would like to discuss best practices of creating a more diverse HCI education. We are especially interested in finding out how to avoid at least some of the pitfalls we have previously described and to gain a new perspective on how we can design our own course. Additionally, since we are fairly new to the topic, we would like to talk about inter-disciplinary, inter-university HCI courses and how to deal with different educational backgrounds.

REFERENCES

- [1] Richard Buchanan. 1992. Wicked Problems in Design Thinking. *Design Issues* 8, 2 (1992), 5. <https://doi.org/10.2307/1511637>
- [2] Alma L Culén. 2015. HCI Education: Innovation, Creativity and Design Thinking. *International Conferences on Advances in Computer-Human Interactions* (2015), 125–130.
- [3] Audrey Girouard, Andrew L Kun, Anne Roudaut, and Orit Shaer. 2018. Pervasive Computing Education. *IEEE PERVASIVE COMPUTING* (2018), 4.
- [4] Tom Gross. 2014. *Human-Computer Interaction Education and Diversity*. Vol. 8510. Springer International Publishing, 187–198. https://doi.org/10.1007/978-3-319-07233-3_18
- [5] Maria Klawe. 2013. From 10% to 40% Female CS Majors: The Harvey Mudd College Story. <https://www.youtube.com/watch?v=8TvYUjgaEQU>
- [6] Naemi Luckner and Peter Purgathofer. 2015. Exploring the Use of Peer Review in Large University Courses. *Interaction Design and Architecture(s) Journal* 25 (2015), 21–38.
- [7] Naemi Luckner, Peter Purgathofer, and Geraldine Fitzpatrick. 2018. Reflecting on Challenges of Conducting Design-Based Research in Large University Courses. In *EdMedia + Innovate Learning 2018*. AACE, 807–821.
- [8] Naemi Luckner, Peter Purgathofer, and Geraldine Fitzpatrick. 2019. Learning about Deadlines from a Community of Learners. 5.
- [9] Ingrid Mulder. 2015. A pedagogical framework and a transdisciplinary design approach to innovate HCI education. (2015), 14.