Decolonizing the Informatics Curriculum

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In the following, we discuss the activities we are performing towards decolonizing the Informatics curriculum.

1. Working group

First, we formed a working group to understand what decolonization might mean for Informatics. The working group consisted of Dr. Cristiana-Adriana Alexandru, Dr. Kobi Gal, Professor Jane Hillston (our Head of School), Dr. Nadin Kokciyan and me, Dr. Vijay Nagarajan (Director of EDI). Initially, there was a sense that there is little to do here -- with Informatics mostly being a post-colonial discipline. During our working group meetings, we quickly discovered that there are several potential issues at hand including: problematic issues that are related to computing terminology; issues related to the disappearance of influential contributions by "others", among others. We also felt it was very important to have a conversation within Informatics staff and students to come to a consensus on what decolonization meant to us. We felt that holding interactive workshops would enable this.

2. Workshops

Informatics is a large heterogeneous department with ~140 faculty working on a broad range of topics, from proving mathematical theorems about computing, to the engineering issues inherent in designing a computer. Fortunately, the institute structure within Informatics allowed us to hold workshops individually within each institute, members within which roughly work on similar things. Before each workshop, we sent an email, asking people to view the following introductory video that we prepared. We also provided the following resources.
1. An overview of decolonization: link
2. Pedagogy of the oppressed: Paulo Freire
3. A reading list: link
4. An interesting article that "Ubicomp's colonial impulse': link
5. Technology Colonialism: link
6. Advice from Broaden Participation in Computing project: link

We used padlet to trigger interaction and organize the ideas that came out during the workshops. (Padlet proved to be very useful in hindsight). Here are some important ideas:
- There was lots of discussion on what decolonization meant for Informatics. In the end, we felt that there was consensus for a broad interpretation which at its heart is about **making course content and course delivery inclusive.**
- While there was support for the above interpretation, some felt that this interpretation is a bit too broad. However, even those who felt that way agreed that this was a good thing to do.
- There were several interesting course-specific examples of "Inclusive content" and "Inclusive delivery" that were discussed which helped us all gain a shared understanding of the issues at hand.

Finally, we also held a focus group with the students to get their perspective on this effort, including understanding their own and witnessed experiences on discrimination and gender bias.

3. Soliciting actions

Following the successful workshops, we emailed each course organizer asking them to specify **actions they are taking to decolonize their course content and delivery.** For guidance, we gave them open-ended questions to help with the introspection.

Decolonizing Content:

- *Have you considered whether there is any terminology used in the course that can be offensive or exclusionary?*
- *Are you highlighting the influential work of underrepresented pioneers?*
- *Are the examples and case-studies considered in the course diverse? E.g., are all examples pertaining to one particular country?*
- *Have you considered whether the examples discussed use stereotypes?*

Decolonizing Delivery:

- *Are you establishing a level playing field?*
  - *E.g., Students who don't fit the stereotype of someone pursuing computing may need more explicit connection to their real life.*
  - *Consider the Purpose, Task, Criteria approach for coursework*

Finally, we also provided answers to a list of FAQ:

- *So, how is all of this connected to Decolonization?*
  - *As was discussed during the workshops, we are taking a broad interpretation of decolonization: at its heart this is about making our course content and delivery inclusive.*

- *When is something "bad teaching" vs "decolonized" teaching? E.g., how is Active Learning or Purpose, Task, Criteria approach related to decolonization?*
  - *The overarching aim is to improve our courses and make it more inclusive. Techniques such as Active Leaning have been shown to offer disproportionate benefits to underrepresented groups [Theobald et al.]*

- *I have identified a problem with my course that requires a more systemic solution and/or requires resources.*
  - *Please mention it in the form and talk to the Teaching leadership team.*

- *Peer feedback will be useful as some of the issues may be unconscious.*
  - *Please have a discussion with other lecturers (if any) belonging to the course. Please consider issues related to decolonization during the mandatory Peer Observation of Teaching.*

4. Actions

Till date, we have received forms from all but 6 out of a total of ~60 running this year. There was some insightful content in the forms, and we summarize them here under the following categories.

Decolonizing Content.

1. Terminology: Several courses have mentioned that they will pay attention to terminology. One example is to avoid using master/slave to represent computing agents and instead use coordinator or workers. Another example it is to avoid using predominantly Western names such as Alice/Bob (as is common in the computer security literature).
2. Avoiding stereotypes in examples. For example, avoiding examples that could be off-putting for a group of the students taking the course.

3. Ethical issues and real-world implications. Several courses are explicitly discussing the ethical issues and real-world implications inherent to the course content. For example, the societal consequences of employing data analysis, and fairness issues in employing machine learning. For another example, how machine learning can make predictions that disfavor minorities. For yet another example, relevant courses discussing not only UK-specific laws but also the laws from other parts of the world.

4. Inclusive examples and case-studies. Most courses are paying attention to the examples and case studies used in the course, making sure that they are inclusive of all cultures and geographies. For example, several of Informatics courses are theory-based and close to mathematics, and they are explicitly highlighting the foundational work from Persia (the phrase algorithm derived from Al Khwarizmi), China (Chinese remainder theorem), and India. For another example, cognitive science often has a western bias, and so the relevant course explicitly includes other languages into the tutorials and avoids discussing work that's considered biased (and/or explicitly highlight those works as bad science). For yet another example, computer systems often have a western bias, with processor chips coming out of major corporations in the Bay area; in the recent past, however, the situation has changed with several processors coming out of Japan and China, and these are highlighted in the relevant courses.

5. Highlighting the work of underrepresented pioneers. Several courses are highlighting the work of pioneers in computing from underrepresented communities. For example, some courses are choosing textbooks from female authors where possible. One course, which is about computer science pedagogy, asks students to create a poster or a video of a forgotten computing superstar. Some course organizers are explicitly including pictures of the pioneers so that the message is clear.

Decolonizing Delivery

1. Several courses are combatting the hidden curriculum with a "purpose/task/criteria" approach to coursework; before every coursework, the purpose of it is explained; then the task is outlined: what precisely needs to be done, and finally, the criteria, how the marking is going to be done highlighting both good and bad examples.

2. Celebrating diversity: Some courses are undertaking activities to explicitly celebrate diversity: e.g., sharing the fact that there are > 30 native languages spoken in a language processing course.

3. Several courses are taking actions to ensure a level playing field. For example, ensuring that the introductory lectures are accessible and real. By ensuring that the English used in lectures is as simple as possible. By instructing markers to not penalize Grammar/English issues in the coursework. By including detailed lecture notes. By providing subtitles for video lectures. When auto-marking solutions making sure that the auto-marking software accepts different formats including Unicode encoding. By incorporating Universal design for Learning, i.e., combining multiple means of representation and expression in course design. By employing textbooks that are freely available and/or for whom translations are available. By employing different modes of interaction including conventional synchronous lecturing/office hours with asynchronous lectures, tutorials and message-board interaction.

4. Several courses are employing active learning methods to improve delivery. For example, flipped classroom, discussion sessions, engagement quizzes, online polls to understand where students are. One course is explicitly employing Laurillard's ABC learning design.

5. Several courses are incorporating student-led activities, including group discussion sessions where students share personal views and experiences, courseworks performed in groups. Some course organizers are briefing tutors to ensure discussion and student-led activities in the tutorials.

5. Mainstreaming

We are mainstreaming decolonization as follows. Every new course will have to explicitly consider decolonization under "Inclusivity impact assessment" which will be formally part of Board of Studies proposal for the course. The section will contain the two questions:

(1) What actions are you taking towards making your course content inclusive? Please be as specific as possible. If you are not taking any action, please justify.

(2) What actions are you taking towards making your course delivery inclusive? Please be as specific as possible. If you are not taking any action, please justify.

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