Improving diversity in computing:

A future research agenda

It is widely agreed that more needs to be done to improve diversity and participation in computing. Yet the research base in this field is still emerging, especially compared with work in science and mathematics education.

This infographic sets out a future research agenda for advancing knowledge and informing policy and practice about the factors that impact participation in computing. It was jointly developed[1] by a diverse group of experts[2], representing industry, policy, practice and academia, and is informed by their significant research and professional expertise. The infographic identifies four key research aims that cut across all educational/learning levels and contexts (from primary to secondary, higher and informal learning sectors):

Aim 1: **Examine the factors shaping computing preparedness and transitions.**

This includes improving understanding of the challenges that learners face at different ages and transition stages and how these affect their preparedness and progression. In higher education, there is a need to investigate non-completion and retention in computing degrees and ways to improve this.

Aim 2: **Explore how to create effective, equitable and inclusive computing pedagogy, policy and practice, including challenging peer sexism.**

This includes identifying and developing equitable pedagogy among computing educators across all ages and sectors. In schools, this includes considering the curriculum and the extent to which it supports (or constrains) diverse participation.

Aim 3: **Investigate the impact of interventions, role models and allies on learner trajectories and diversity in computing.**

This involves exploring how to challenge dominant perceptions and stereotypes around computer science and increasing understanding of how interventions support or constrain equitable participation in computing at different levels.

Aim 4: **Investigate how to build more effective computing learning ecosystems.**

This involves examining the relationship between school and out-of-school offers across time and space, identifying how to build better pathways for progression. It also includes understanding how families shape children's computing identity, engagement and progression.

For more information, please contact: ioe.stemparticipationsocialjustice@ucl.ac.uk *or* q.liu@ucl.ac.uk

Find out more: ucl.ac.uk/ioe/aspires

Google · Abertay University · UNIVERSITY OF OXFORD · University of Reading · RASPBERRY PI COMPUTING EDUCATION RESEARCH CENTRE · UCL