The Centre for Research in Digital Education is based in the Moray House School of Education and Sport at the University of Edinburgh. We are interested in how research and practice in education intersects with technology, and the impact of this on culture, policy and pedagogy.

We work with many partner universities as well as policymakers, the cultural heritage sector, schools and other public and private sector organisations.

We take a critical, cross-disciplinary approach to learning, teaching and technology in formal and informal education, and combine our research with world-leading practice in digital education and learning.

CONTACT
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Editorial

Our work investigates how education is shaping, and is shaped by, technological change.

There’s so much to say about our achievements over this year, but given the situation we find ourselves in as the report is finalised, I wanted to use this editorial to talk specifically about some of the ways we are bringing our collective expertise to the academic COVID response, within our own university, sector-wide and globally.

“We will share some of the ways we are bringing our collective expertise to the academic COVID response, within our own university, sector-wide and globally.”

Our infographic this year focuses on our international reach, so I will begin with the international aspects of our COVID work. Michael Gallagher, working with colleagues in universities in Tanzania, Uganda and Nigeria, rapidly switched a Global Challenges Research Fund project looking at marginalisation in digital education to a COVID response programme delivering training programmes for online teaching in these countries. James Lamb joined an international group of academic semioticians who have come together to try to understand how communication and social interaction are changing during the global pandemic, while Ben Williamson has been funded to interrogate the acceleration of marketisation in education post-COVID with a co-investigator at the University of Queensland, Australia.

Scottish schools have been another focus of our work, as Judy Robertson and colleagues rapidly established a resource-sharing web site for schools in lockdown, including weekly ‘Moray House Online Conversations’, in which over 1,500 teachers and leaders have so far come together to discuss the challenges of remote teaching.

Kate Farrell hit the news when she delivered 30 computers to local high schools in the week before lockdown in order to help computing science pupils without access, while Tommy Lawson is providing essential liaison between schools, education authorities and government.

A lot of our effort has been directed locally, as our own university works out how to approach teaching over the next academic year (internal link only). Supported by colleagues in the Edinburgh Futures Institute, Institute for Academic Development and across the university – I led the development of a blueprint for hybrid on/off-campus teaching. As we locked-down in March, Michael Gallagher worked with colleagues in Information Services to rapidly develop training for emergency remote teaching reaching 800 academic and support colleagues. Following from this, he developed and led an advanced course for online teaching (An Edinburgh Model for Teaching Online), which will have been delivered to 600 academic colleagues by the end of July.

Many members of our Centre are tutoring on this course and pretty much all of us are providing leadership and mentoring across the School of Education and beyond, sharing expertise built through our research as well as our teaching on the online MSc in Digital Education.

“All of us are are providing leadership and mentoring across the School of Education and beyond, sharing expertise built through our research as well as our teaching on the online MSc in Digital Education.”

This is a sample of our activity over recent weeks and gives just a few highlights on how we have been contributing. It’s been a tough year in many ways but we have achieved an immense amount across all areas of our activity. I hope you enjoy reading about some of it here.

Professor Siân Bayne
Director
Centre for Research in Digital Education
ACADEMICS

PROFESSOR SIAN BAYNE
Director of the Centre for Research in Digital Education

Sian’s research is currently focused on higher education futures, interdisciplinary approaches to researching digital education and digital education in the data society.
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Research Associate

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DR PETER EVANS
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DR SERDAR ABACI
Lecturer in Data and Digital Literacies

Serdar joined the research Centre in April 2020 and is currently involved in the Data Education in Schools project, developing a course on Digital Literacy. He is also leading a comprehensive review of how educational technology implementations are evaluated in Human-Computer Interaction publications. His research interests include formative assessment and feedback, online learning, and evaluation of teaching and learning technologies. Serdar earned his PhD degree in Instructional Systems Technology from Indiana University.
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DR RORY EWINS
Lecturer

Rory’s research interests include how we teach and learn about digital citizenship, the implications of intellectual property for digital education, and digital education in developing countries.
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DR MICHAEL GALLAGHER
Lecturer

Michael researches digital education in development contexts with a particular focus on educational mobilities, how technology structures and manages these mobilities, and the impact of these movements on local knowledge practices and communities.
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DR ZAYBA GHAZALI-MOHAMMED
Research Associate

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PEOPLE

OUR CENTRE CONTINUES TO GROW – THESE ARE OUR PEOPLE, CUTTING ACROSS DISCIPLINES AND SECTORS TO SHAPE THE FUTURE OF RESEARCH IN DIGITAL EDUCATION.

While we continue to celebrate the amazing work of our team on our website, the annual report is a good opportunity to highlight some notable achievements. Andrew Manches won the University’s annual Tam Dalyell prize for Excellence in Engaging the Public with Science on the basis of his work with Children and Technology, while Kate Farrell won the Technology Champion in Education award at the Scotland Women in Technology awards.

»Our Centre has also grown significantly with the addition of the Data Education in Schools research strand to acknowledge the important work of this Data Driven Innovation project.«

Our already impressive team of colleagues has continued to grow over the last year. We have welcomed Dr Serdar Abaci, Dr Huw Davies and Dr James Lamb as lecturers, Dr Kate Miltner as TRAIN@ED Postdoctoral Fellow, Dr Markus Breines as Research Associate and Dr Margaret Laurie as Research Assistant. Our first robot colleague, ‘Effie St John’, has also joined us, supporting the Centre on-campus engagement for our off-campus students, colleagues and partners.

Our Centre has also grown significantly with the addition of the Data Education in Schools research strand to acknowledge the important work of this Data Driven Innovation project. The team now includes Jo Spiller, Programme Manager, and Jenni Doonan, Business Development Manager. Professor Judy Robertson, Chair in Digital Learning, leads the team as Centre Co-director for this new area of research. Supporting this team, Professor Greg Michaelson joined us as Honorary Professor in September 2019.

With the conclusion of Numbuko and Magic Cloud projects in the last year we have said goodbye to Robyn Pritzker and Libby Odai. While Dr Yi-Shan Tsai and Dr Yuchen Wang remain as Centre Associates they have both completed research contracts this year. Our doctoral research community celebrated successful vivas and the graduations of Murray Craig (PhD), James Lamb (PhD), Margaret Laurie (PhD), Xin Luo (PhD), Eder Paula (PhD), Debbie Schachter (PhD) and Paul Udoña (APhIL). We wish them all well for the next steps in their careers.

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Dr Huw Davies
Lecturer

Huw joined the Centre in December 2019 from Oxford University’s Internet Institute. His research addresses the relationships between technology, gender, race, generation, and social class using a variety of qualitative and innovative computational research methods. Huw is currently investigating AI’s impact on education, particularly why it is being hailed as a solution to educational problems, who is investing in educational AI and why.
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Dr Jeremy Knox
Lecturer, Centre Co-Director
(Data Society)

Jeremy’s research is currently focused on critical approaches to AI, machine learning, algorithms and ‘big data’ in higher education, with a particular interest in China. Jeremy also co-convenes the Society for Research in Higher Education (SRHE) Digital University network.
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jeremyknox.net

Dr Andrew Manches
Co-depute Director of RKE (Impact), Centre Co-Director
(Children & Technology)

Andrew has led multiple Learning Sciences projects including the UK side of Move2Learn. He researches the role of interaction in how we think and learn, and the implications for early learning. He marries his academic world with industry as CEO of an early learning technology company, Ping Ltd.
Andrew.manches@ed.ac.uk

Dr James Lamb
Lecturer

James joined as a lecturer in December 2019. He is a co-author of the Manifesto for Teaching Online and has published research around multimodal assessment and feedback, and the learning spaces of online students. His research is informed by critical posthumanism and theories of sociomateriality, particularly as a way of investigating how educational spaces are affected by digital technologies and pedagogies. He is also developing ways of using sonic methods within social research, for instance to investigate how technologies help to enact power and hierarchy within educational settings.
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Associate Lecturer

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Dr Judy Robertson
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Judy has been developing educational technology in collaboration with children and teachers since 1997. She is interested in computer education and serious games for children, particularly game authoring. Her work focuses on how technology can help to solve thorny real world problems.
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Jen is involved with the Edinburgh Futures Institute, the Centre for Data, Culture and Society, and the Digital Cultural Heritage Research Network at the University of Edinburgh. She researches and publishes on digital cultural heritage engagement and learning, online and open education, digital futures and speculative methods, and online reflective practices.
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Phil’s research interests are interdisciplinary, based in the area of digital and higher education, but drawing on organisational theory, cultural geography, and social theories of time. Phil is currently developing research in the library sector.
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Dr Kate Miltner
TRAIN@ED Postdoctoral Fellow

Kate joined the Centre for Research in Digital Education in November 2019. Kate’s research agenda focuses on the intersection of technology, social location, and structural power. She has published scholarly work on a variety of topics relating to these themes, including internet memes, animated GIFs, online antagonism, selfies, and big data. Kate’s research has also been featured in Wired, Slate, The Atlantic, The Guardian, Time, and the BBC.
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Assistant Professor Lydia Plowman
Chair in Education and Technology

Lydia has more than twenty years’ experience of conducting research with children and digital media. She is interested in young children’s learning in a range of formal and informal settings, particularly the ways in which technology is integrated into family life, leisure, work and for educational purposes in the home.
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Professor Judy Ploovan
Chair in Education and Technology

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Professor Jeremy Knox
Chair in Digital Learning, Centre Co-Director
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Jeremy’s research is currently focused on critical approaches to AI, machine learning, algorithms and ‘big data’ in higher education, with a particular interest in China. Jeremy also co-convenes the Society for Research in Higher Education (SRHE) Digital University network.
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Peter.Sheail@ed.ac.uk
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Greg is supporting the Data Education in Schools research strand with a longstanding interest in how people understand programs, and in the pedagogic bases for teaching programming.

Jeff conducts research in the area of digital education policy and strategy, and previously led the Policy research strand of work for the Centre for Research in Digital Education. thinking.is.ed.ac.uk/jeffhaywood/re-search-activities

Martin researches datafication and metricisation, teacher professionalism and labour. He is currently looking at European education policy and the history of education.

Hamish is an Honorary Fellow with research interests in the use of computer-mediated communications and game-informed approaches in teaching and learning. Hamish was a Senior Lecturer with the Centre for Research in Digital Education until his retirement and continues to supervise doctoral students.

Christine was programme director on the MSc in Digital Education from 2015 to 2018. She is particularly interested in the changing uses of language and the role of dialogue in digital environments. In addition to writing, she continues to supervise and examine doctoral students and is currently reworking her summer school in academic writing into an open educational resource.

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Dr. Ben Williamson
Chancellor’s Fellow, Centre for Research in Digital Education and the Edinburgh Futures Institute.

Ben is interested in educational data infrastructures which enable information to be collected from schools and universities, analysed and circulated to various audiences. A second area of interest is ‘intimate data’ relating to students’ psychological states, neural activity, and genetic profiles, and the implications for educational policy and practice.

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Dr. Claire Sowton
Project & Communications Manager
Claire is the Project and Communications Manager for the Centre for Research in Digital Education and Project Manager (UK) for the Move2Learn project. Her recent research has focused on digital and mobile approaches to engagement and evaluation of cultural experience.

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Angela Hunter
Centre Administrator
Angie organises all aspects of the day-to-day running of the Centre for Research in Digital Education and provides focused support on the City Deal and Move2Learn projects. angela.hunter@ed.ac.uk

Jenni Doonan
Business Development Manager
Jenni is former space engineer with a BSc in Computing & Electronics and MSc Astronautics and Space Engineering. Jenni joined the Centre in June 2019, initially with a focus on building partnerships between the Data Education in Schools project and businesses. More recently Jenni has started to work on the development of a data orientated curriculum and associated resources for teachers and learners, with plans to continue her research interests by pursuing a PhD in teacher education and STEM.

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Jo Spiller
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Dr. Hamish MacLeod
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Hamish is an Honorary Fellow with research interests in the use of computer-mediated communications and game-informed approaches in teaching and learning. Hamish was a Senior Lecturer with the Centre for Research in Digital Education until his retirement and continues to supervise doctoral students.

Dr. Christine Sinclair
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Dr. Tommy Lawson
Schools Technology Advisor
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Programme Manager
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GLOBAL REACH

OUR STUDENTS

UNITED KINGDOM
- Ethics and Justice for Data and Artificial Intelligence
- Hacking the Distance Learning
- A Learning Analytics approach to Micromasters
- Exploring the teacher function: Interventions in automated teaching
- Data Justice and the Right to the City
- The Automatic University: assessing the effects of datafication and automation on higher education.
- Who’s coding? Investigating UK coding course experiences and outcomes
- Lecture recording for inclusive education
- The University of Data: Ethical and Social Futures of Data-Driven Education
- Move2Learn: Embodied learning for pre-school scientists
- Digital Education research cluster (UGANDA, NIGERIA, TANZANIA)
- Foundations for all (LEBANON)
- UNA Europa (ITALY, FRANCE, POLAND, FINLAND, GERMANY, SPAIN, BELGIUM)
- TURKEY, MEXICO, NEPAL, KENYA
- GCRF Urban Disaster Risk Hub
- Commercialization and privatization of/in education in the context of Covid-19 (AUS)

AFRICA
- Who needs a feedback bot? Impact of automation on feedback pedagogy and learning experience (BRAZIL)
- Co-designing with Speculative Data Stories: Higher Education After Surveillance

AMERICAS
- Move2Learn: Embodied learning for pre-school scientists (US)

ASIA
- Foundations for all

MAINLAND EUROPE
- UNA Europa

OCEANA
- Commercialization and privatization of/in education in the context of Covid-19 (AUS)
DIGITAL CULTURES

WORK IN THIS STRAND OFFERS CRUCIAL INSIGHTS INTO HOW DIGITAL CULTURES INFLUENCE AND ARE SHAPED BY EDUCATION IN A WIDE RANGE OF CONTEXTS – FROM MUSEUMS TO UNIVERSITIES, FROM WORKPLACES TO LOW-RESOURCE COMMUNITY SETTINGS.

DR JEN ROSS

EDUCATION, KNOWLEDGE, LABOUR, CREATIVE INDUSTRY AND HERITAGE SYSTEMS GLOBALLY ARE BEING RE-SHAPED BY DIGITAL AND DATA TECHNOLOGY. TECHNOLOGIES, IN TURN, ARE SHAPED BY THE CULTURAL CONTEXTS IN WHICH THEY ARE MADE AND USED.

DIGITAL CULTURES IS COMMITTED TO DEVELOPING CRITICAL PERSPECTIVES ON THIS FROM DIVERSE DISCIPLINARY PERSPECTIVES. WE ARE ACTIVELY RESEARCHING HIGH IMPACT AREAS INCLUDING DIGITAL PEDAGOGIES AND FUTURES, DIGITAL CULTURAL HERITAGE, WORKPLACE LEARNING AND INTERNATIONAL DEVELOPMENT AND EDUCATION.

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PROJECTS 2019–2020

GCRF Urban Disaster Risk Hub
PRINCIPAL INVESTIGATOR
Professor John McCloskey
School of Geosciences
CO-I
Professor Siân Bayne
FUNDER
UKRI Global Challenges Research Fund
AWARD DURATION DATES
£40,552 1 Year 1.2.2019
£19.6M
–31.1.2024

Lecture recording for inclusive education
PRINCIPAL INVESTIGATOR
Dr Jeremy Knox
TEAM
Dr Yuchen Wang
FUNDER
Principal’s Teaching Award
The University of Edinburgh
AWARD DURATION DATES
£14,397 10m 1.3.2018

Digital Education research cluster, Nigeria, Tanzania, Uganda
PRINCIPAL INVESTIGATOR
Dr Michael Gallagher
CO-I
Dr Joel Mtebe
University of Dar es Salaam, Tanzania
Dr Rovincer Najjuma
Makerere University, Uganda
Dr Maryam J. Ismail
State University of Zanzibar, Tanzania
Professor Adamu Hassan
Ahmadu Bello University, Nigeria
FUNDER
GCRF Theme Development Fund
AWARD DURATION DATES
£23,000 18m 1.1.2019
–24.6.2020

Foundations for all
PRINCIPAL INVESTIGATOR
Jean-Benoit Falisse
School of Social and Political Science
CO-I
Dr Michael Gallagher
Dr Kate Symons
Edinburgh Global
Mr Michael Crawley
School of Social & Political Science
FUNDER
Mastercard Foundation
DURATION DATES
2 Years 1.7.2019
–30.6.2021

Co-designing with Speculative Data Stories: Higher Education After Surveillance
PRINCIPAL INVESTIGATOR
Dr Jen Ross
TEAM
Dr Amy Collier
Dr Jane McKie
Dr Anna Wilson
FUNDER
Edinburgh Futures Institute
DURATION DATES
5m 15.2.2020
–31.7.2020

The University of Data: Ethical and Social Futures of Data-Driven Education
PRINCIPAL INVESTIGATOR
Dr Karen Gregory
School of Social and Political Science
Dr Jen Ross
FUNDER
Edinburgh Futures Institute
(Baillie Gifford Data Ethics studentship)
DURATION DATES
3 Years 10.2020
–09.2023

VIEW
https://bit.ly/30pFm37

VIEW

VIEW

VIEW
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We believe that a better understanding of how children interact with technology not only helps us understand its influence, but also helps inform our role, in both supporting children’s interactions and informing the design of new technologies.

Dr Andrew Manches

The Children and Technology research strand contributes to discussions about technology in young children’s lives and provides valuable insight and support for parents and teachers. We engage decision-makers in the role of technology in children’s lives and create richer learning experiences by informing the design process.

Our taught MSc Education course continues to receive recognition: «[A] flagship example of innovative approaches to teaching and learning in higher education. It is to be commended for the creativity and variety of assessment and learning opportunities available to students.»

External Examiner

Projects 2019–2020

**Magic Cloud: Business Booster**
- **Principal Investigator:** Dr Andrew Manches
- **Team:** Libby Odai
- **Funder:** ESRC Business Booster
- **Award:** £10,000 6M 1.1.2019 – 31.7.2019
- **View:** [https://bit.ly/2Y3RkXa](https://bit.ly/2Y3RkXa)

**Move2Learn: Embodied Learning for Pre-school Scientists**
- **Principal Investigator:** Dr Andrew Manches
- **Team:** Dr Zayba Ghazali-Mohammed, Dr Claire Sowton, Dr Margaret Laurie, Jamie Menzies
- **Funder:** Wellcome Trust Translational Partnership Award
- **Award:** £374,411 4 Years 1.5.2017 – 30.4.2021
- **Total Value:** £701,656

**Developing Children’s Understanding of Personal Data**
- **Principal Investigator:** Dr Andrew Manches
- **Co-I:** Professor Lydia Plowman
- **Team:** Benjamin Bach, Bettina Nissen, Paul Patras, Ewa Luger, James Stewart
- **Funder:** Edinburgh Futures Institute
- **Award:** £3000 7M 1.6.2019 – 31.1.2020

**Digital Play**
- **Principal Investigator:** Professor Lydia Plowman
- **Funder:** CAHSS Knowledge Exchange and Impact Grant, University of Edinburgh
- **Award:** £5,000 3M 15.4.2019 – 15.7.2019

**Co-Creation of an Embodied Learning Technology for Early Science**
- **Principal Investigator:** Dr Andrew Manches
- **Co-I:** Dr Zayba Ghazali-Mohammed
- **Team:** Jamie Menzies
- **Funder:** Wellcome Trust Translational Partnership Award
- **Award:** £19,519 34M 1.1.2019 – 30.10.2021

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This theme is concerned with innovative interdisciplinary studies of data-processing technologies and data-intensive socio-technical systems, with a particular focus on developing educational perspectives that can enhance the technical, sociological, political, and ethical understanding of the contemporary ‘data society’.

Key directions for research involve examining the relationships between technical areas such as artificial intelligence (AI), machine learning, algorithms, and ‘big data’, and educational issues such as curricular and policy development, classroom practices, educational theory, the learning sciences, and education technology development.
DATA EDUCATION IN SCHOOLS IS SUPPORTING YOUNG PEOPLE ACROSS THE CITY REGION TO DEVELOP THE CONFIDENCE, COMPETENCE AND AMBITION TO USE DATA TO BENEFIT THEMSELVES AND THEIR COMMUNITIES

PROFESSOR JUDY ROBERTSON

The digital revolution is changing the world of work. By the time today’s schoolchildren are ready to enter the workplace, many will be expected to perform roles that don’t yet exist. Data Education in Schools is part of the Edinburgh and South East Scotland City Region Deal Skills programme and aims to teach data literacy and data citizenship skills to learners ages 3-18 years old in the Edinburgh and surrounding area.

The Data Education in Schools research strand focuses on the evidence base that ensures our programme evolves as an understanding of data, ethics and society advances.

DATA EDUCATION IN SCHOOLS

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CONTACT
Professor Judy Robertson
Co-Director for Data Education in Schools
Judy.Robertson@ed.ac.uk

Professional learning workshops
AIM
Ten workshops suited to teachers who may be new to teaching computing science developed and delivered in 3 venues during 2019-2020.
FIND OUT MORE

National Progress Award Data Science
AIM
Working with the Scottish Qualifications Authority (SQA) to develop a National Progress Award (NPA) qualification in Data Science at Levels 4, 5 and 6.
FIND OUT MORE
https://bit.ly/3PRW9d0

Building Digital Infrastructure Capacity
AIM
A comprehensive outline of the existing educational technology infrastructure across the six local authorities of the Edinburgh and South East Scotland City Region.
FIND OUT MORE

Industry engagement
AIM
Tailored high-impact partnerships designed to deliver against industry priorities.
FIND OUT MORE

Knowledge Sharing Schools
AIM
Knowledge Sharing Schools will support the development of a data skills curriculum across the Edinburgh city region by helping lead and shape this important initiative in data skills development.
FIND OUT MORE

FUNDING
University of Edinburgh
Integrated Regional Employability and Skills programme (Edinburgh and South East Scotland) City Region Deal

AWARD DURATION DATES
£2.4M 8 Years 1.04.2019 – 31.03.2027

VIEW
https://bit.ly/2UPIzWm

PROJECTS

PROGRAMME 2019–2027

Data Education in Schools

PRINCIPAL INVESTIGATOR
Professor Judy Robertson

TEAM
Jo Spiller
Kate Farrell
Tommy Lawson
Jenni Doonan
Dr Serdar Abaci

FUNDING
University of Edinburgh
Integrated Regional Employability and Skills programme (Edinburgh and South East Scotland) City Region Deal

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Between the blabbering noise of individuals or the silent dialogue of many: A collective response to 'Postdigital Science and Education' (Jandrić et al. 2018), Postdigital Science and Education, 1, pp. 446-474. DOI: 10.1080/17439884.2019.1705848

Williamson, B 2020, ‘One part politics, one part technology, one part history’: Racial representation in the Unicode 7.0 emoji set. New Media and Society, Online first. DOI: 10.1177/1461444819899623


Ross, J, Curwod, JS & Bell, A 2020, A multimodal assessment framework for higher education, E-Learning and Digital Media. Available at: https://www.research.ed.ac.uk/en/publications/a-multimodal-assessment-framework-for-higher-education(8273a8f7-82a9-464f-b5f8-65e5-f85f3f8f9f9f).html


Knox, J 2019, Postdigital as (re)turn to the political, Postdigital Science and Education, 5(2), pp. 1-3. DOI: 10.1080/17439139.2019.1603887
This report was jointly funded by University of Edinburgh, Moray House School of Education and Sport and with grant support from Skills Development Scotland. Judy led the production of the report for the University of Edinburgh with a steering board comprising Education Scotland, the General Teaching Council for Scotland, Scottish Government, Computing at Schools Scotland, University of Glasgow School of Computing Science, Scottish Informatics and Computer Science Alliance, Scottish Enterprise and the Royal Society of Edinburgh.
How technology, culture, learning and policy intersect within research and practice in digital education.