Institution: London School of Economics and Political Science (LSE)

Unit of Assessment: 34 – Communication, Cultural and Media Studies, Library and Information Management

Title of case study: From skills to outcomes: Improving digital inequalities metrics, policy and interventions

Period when the underpinning research was undertaken: 2011–20

Details of staff conducting the underpinning research from the submitting unit:

Name(s):	**Role(s) (e.g. job title):**	**Period(s) employed by submitting HEI:**
Ellen Helsper	Professor of Digital Inequalities	2009 to present

Period when the claimed impact occurred: 2014–20

Is this case study continued from a case study submitted in 2014? No

1. Summary of the impact (indicative maximum 100 words)

Ellen Helsper leads the From Digital Skills to Tangible Outcomes (DiSTO) project at LSE. The impact of her research extends to over 30 countries associated with the DiSTO research network coordinated and mobilised by Helsper. The digital skills measures and outcomes-based frameworks and tools developed by the research have changed how national and international organisations, governments, NGOs, third sector organisations and business models measure digital inequalities. It has consequently changed how they design and evaluate the success of digital inclusion policies and interventions.

Helsper's research shifted the focus of research on digital inequalities from examining mere increases in individuals' access to and use of information and communication technologies (ICTs) towards recognising their ability to translate these into tangible economic, socio-cultural and personal wellbeing outcomes, thus delivering real benefits in their lives. The research led the International Telecommunication Union (ITU) and the European Commission (EC), along with a range of governments around the world, and third and commercial sector organisations to change their institutional practices in ways that significantly enhance the safeguarding of equality in increasingly digital societies.

2. Underpinning research (indicative maximum 500 words)

Helsper's research takes place against a backdrop of rising levels of inequality in parallel with society's rapid digitisation in many parts of the world. There is optimism that the widespread adoption of ICTs, such as the internet and mobile phones, will provide economic, cultural and social opportunities to the disadvantaged, allowing them to catch up with those traditionally better off.

At first, digital inclusion was conceived in terms of whether an individual has access to ICTs. But, as Helsper asks **[1]**, 'Surely the nature of what is done with the technology also matters?' Helsper's 2012 corresponding fields model **[1]** changed thinking by theorising how specific areas of digital and social exclusion relate to each other. The model provided the theoretical underpinning for the DiSTO project. In subsequent research **[2] [3] [4]**, she examined how existing patterns of inequalities are reinforced by digitisation (a 'digital underclass'), for example, by examining the motivations of non-users in Sweden and the UK **[4]** and establishing the terminology of the 'third-level digital divide' **[3]**. While the second-level digital divide refers to internet skills and usage, the third level concerns the outcomes or benefits of such use. Helsper found that the historically advantaged are more likely to (be able to) take advantage of available digital opportunities. Therefore, the more services migrate online, the more likely it is that those who are better off will benefit disproportionately.

The DiSTO project began in 2015 as a pilot led by Helsper in collaboration with the University of Twente (Alexander van Deursen) and the Oxford Internet Institute (Rebecca Eynon). It developed and validated a comprehensive and rigorous set of ICT skills, use and outcome metrics, including the widely adopted Internet Skills Scale **[5]**. Helsper built this into an international academic network (2016–19) that conducted comparative research using the DiSTO methodology. Chaired by Helsper and funded by governments and research councils, the network researched the third-level digital divide through surveys, interviews and mapping of socio-digital inequalities in Latin

America, the Middle East, Asia and the US, with key partners in Brazil, Chile, Kuwait, the Netherlands, Spain, the UK, Uruguay and the US. Further spin-off projects are taking place in Argentina, China, Ghana, India, Portugal and Switzerland.

The Internet Skills Scale, which, in its 2015 iteration, established five core skills (operational, navigation information, social, creative, and mobile), continues to develop. It has been applied in international academic projects including the European Horizon 2020 ySKILLS (2020) project, Global Kids Online (GKO) with UNICEF (2016, a cross-national collaboration of 20+ countries) and the World Internet Project (2017, a collaboration of 46 countries). Analysis of Dutch data showed that non-technical skills such as content creation and communicative abilities are linked to beneficial outcomes offline (so-called 'collateral benefits'), revealing the value of training in 'softer' ICT skills **[6]**. These findings have since been replicated in other countries.

Findings from Helsper's research show how geography is vital to outcomes: some disadvantaged individuals were shown to be able to take up opportunities that others, living elsewhere, could not. Consequently, Helsper led research that used visual mapping of social and digital exclusion at the neighbourhood level in the UK based on metrics she had developed. This data visualisation method, using DiSTO metrics, was applied in collaboration with partners at the University of Southern California (Hernan Galperin) and the University of São Paulo (Fabio Senne) **[5]**. All this shifted the emphasis in research and interventions (as explained in Section 4 below) from the individual level towards network and local community explanations of digital inequalities.

3. References to the research (indicative maximum of six references)

[1] Helsper, E.J. (2012). A corresponding fields model of digital inclusion. *Communication Theory, 22*(4), 403–426. doi:10.1111/j.1468-2885.2012.01416.x.

[2] Helsper, E.J. & Reisdorf, B. (2013) A quantitative examination of explanations for reasons of internet non-use. *Cyberpsychology, Behavior, and Social Networking, 16*(2), 94–99. doi:10.1089/cyber.2012.0257.

[3] van Deursen, A.J.A.M. & Helsper, E.J. (2015). The third-level digital divide: Who benefits most from being online? In L. Robinson, S.R. Cotton, J. Schulz, T.H. Hale & A. Williams (eds) *Communication and information technologies annual: Digital empowerment: Opportunities and challenges of inclusion in Latin America and the Caribbean, 10*, 29–52. doi:10.1108/S2050-206020150000010002.

[4] Helsper, E.J. & Reisdorf, B.C. (2016). The emergence of a 'digital underclass' in Great Britain and Sweden: Changing reasons for digital exclusion. *New Media & Society, 19*(8), 1253–1270. doi:10.1177/1461444816634676.

[5] van Deursen, A.J.A.M., Helsper, E.J. & Eynon, R. (2016). Development and validation of the Internet Skills Scale (ISS). *Information, Communication & Society, 19*(6), 804–823. doi:10.1080/1369118X.2015.1078834.

[6] van Deursen, A.J.A.M. & Helsper, E.J. (2018). The collateral benefits of internet use. *New Media & Society, 20*(7), 2333–2351. doi:10.1177/1461444817715282.

The research outputs listed above have all been through rigorous peer-review processes in established journals in the field, thus meeting standard quality indicators.

4. Details of the impact (indicative maximum 750 words)

From its 2015 origins in an Anglo-Dutch academic collaboration, the DiSTO project led by Helsper has radically changed the way national and international organisations measure, design and implement policy and interventions aiming to tackle inequalities in increasingly digital societies. On reading the research and consulting with Helsper, a range of influential stakeholders in government, the commercial and third sectors shifted their emphasis in policy and intervention development from mostly technical aspects, such as providing access to devices and training in technical computer skills, towards a focus on a comprehensive skill set, including interaction and everyday content creation skills, as well as socio-economic and socio-cultural wellbeing outcomes of ICT use for citizens.

The major impacts have been twofold: (1) changes in digital (skills) measurement and related ICT benchmarks used by statistics offices, governments, businesses and NGOs interested in

establishing countries' and individuals' levels of digital development and inclusion; and (2) shifts in digital inclusion practices and interventions of public, third and commercial sector organisations towards wellbeing outcomes in addition to socio-economic outcomes. Both impact vulnerable individuals who are the ultimate beneficiaries of the policies and interventions described below, and, by improving the lives of the most disadvantaged, increase equity in society.

1) **Changing (skills) measurement and benchmarks**

- The **British Digital Skills Partnership** and the **Basic/Essential digital skills indicator**. In 2015, Helsper collaborated with the UK charity Doteveryone to create skills and outcomes measures based on the DiSTO framework **[5]**. Doteveryone is a leading research-based think tank that brings together various stakeholders to bring about responsible technological development. As a result of this collaboration, Lloyds Bank integrated the skills measures into its annual Consumer Digital Index (CDI) in 2016 **[A]**. The CDI is the national standard against which progress on digital inclusion is mapped and measured. It is used by the government, commercial and third sectors to identify gaps and map local inequalities. These measures were used by the British Digital Skills Partnership, a UK government-led multi-stakeholder initiative, which designs targeted digital skills training and provides tools and benchmarks to hold its signatories to account for their progress in improving digital skills. The partners are 26 national public, commercial and charity organisations and nine regional partnerships, with numerous local partner organisations **[B]**.

- The **Centre for Studies on the Development of the Information Society (CETIC.br)** is the charitable research arm of the Brazilian domain name administrators and the official source for statistics on the social and economic impact of ICTs in Brazil. It also serves as a regional hub for research on ICTs in Latin America. Since 2017 CETIC.br has used DiSTO to measure and map ICT skills and outcomes **[C]**. The centre's restructured statistics, in alignment with the DiSTO framework, were essential for developing the Brazilian Centre for Digital Transformation and the country's Digital Governance Strategy, and have been used by the Economic Commission for Latin America and the Caribbean, the ITU, UNESCO and the Organisation for Economic Co-operation and Development (OECD). CETIC.br's director described the collaboration as 'critical to increase the relevance of the evidence produced by Cetic.br, including the impact on policymakers, as well as the usage of this information by researchers and practitioners in Brazil and Latin America' **[D]**.

- **Brazilian Centre for Analysis and Planning (CEBRAP)** – the independent provider of official government statistics in Brazil – approached Helsper in 2018 after reading her papers **[1] [6]** and seeing her work at CETIC.br. Based on collaboration with Helsper, CEBRAP changed its indicators, using DiSTO metrics in annual surveys to assess how local communities are doing in terms of social and digital inequalities. This enabled targeted interventions in left-behind areas and impacted service provision and education for Brazil's 200 million citizens **[E]**. The absence or presence of improvements in these digital inclusion benchmarks highlights who is doing well and who needs to improve. This work is an important reference for Brazilian NGOs and organisations working for equality, allowing them to hold municipal, state and national policymakers in Brazil to account.

- The **European Commission's DigComp framework** identifies the key components of digital competence for 28 EU member states **[F]**; it is also used by UNESCO and the OECD. DiSTO's emphasis on 'softer' skills informed the design and revisions and introduced outcomes-based indicators such as wellbeing and more equal participation from 2016 onwards. Specifically, Helsper's work influenced the design of digital literacy policies and investment in interventions by the EC, 'and through this advanced the common goals set by the Council of the European Union by measuring digital skills and competence in a systematic and theoretically valid way' **[G]**. It subsequently shaped the OECD's 2018 policy questionnaire, which reached the 35 Ministries of Education of the OECD's Governing Board and partner countries. It drove policy deliverables for 2019–20 by distinguishing between 'hard' and 'soft' ICT skills **[H]**.

- The work in Europe and Brazil went on to have an international impact through the **UN ITU's expert group on household indicators surveys and digital skills working group.** Helsper

presented 'Digital skills: Measurement and why it matters' at ITU meetings in October 2016. This led to the revision of its Digital Skills framework in October 2018. Helsper's report **[I]**, launched at the ITU's annual World Technology and Information Systems meeting in 2018, explains the reasoning behind the revisions and is based on DiSTO research. Senior ITU ICT analyst Martin Schaaper described it as 'instrumental in shaping the revision of the indicator "individuals with ICT skills"' **[J]**. The new metrics are used by 113 national statistics offices that supply the ITU/World Bank's Digital Development Indicators with data, influencing national digital skills policies and investment so that they incorporate, and are accountable for not only technical skills, but also strategic and critical elements of digital literacy provision.

2) Shifting institutional practices from access and skills to outcomes-based approaches

- **Department for Digital, Culture, Media and Sport (DCMS).** The DCMS' 'Digital Inclusion Evaluation Toolkit' **[K]**, based on Helsper's corresponding fields model **[1]**, was launched in 2017 and is used by commercial and third sector organisations to evaluate the effectiveness of digital inclusion interventions in the UK based on outcomes of ICT use. DCMS officials praised her contribution for its international breadth: 'These policy areas were new to DCMS so it was crucial to ensure that we had access to the best available evidence and insights … to ensure we are spending taxpayers' money effectively' **[L]**.

- **Nominet Trust (now Social Tech Trust).** Helsper's work with the UK-based grant-making trust in 2017 was a 'revelation' in its focus on positive outcomes rather than skills in themselves **[M]**. It allowed the Social Tech Trust to 'understand our ventures' success by how well they managed to help people use digital products and services to achieve them'. The research informed the design of Digital Reach, an evidence-based social impact programme aimed at disadvantaged young people in the UK **[N]**. The pilot worked with more than 3,600 people and the tools enabled the 12 organisations involved to make better-targeted, more effective interventions.

- **Good Things Foundation.** Good Things is a global social charity managing a network of 5,000 centres in Australia, Kenya and the UK. DiSTO research pushed the interventions of organisations collaborating with Good Things to be local rather than national, and focused on training skills at the community rather than individual level. Helsper's research also underpinned the Good Things Foundation's UK campaign for a '100% digitally-included nation' **[O]**. Its programme supports digital inclusion for over 3 million vulnerable people. The Good Things Foundation's UK Power Up fund targets small businesses and vulnerable individuals, funds 15 community-based projects, and was also informed by collaboration with Helsper, beginning in 2013. Her input was 'critical in making the case for local support that is holistic and focuses on … commitment to helping people make behaviour changes that last' **[P]**. Helsper's framework and research evidence helped Good Things design more effective interventions around local communities' needs using informal social support networks and established organisations. This was a positive move away from individual skills training in formal settings.

- **European Commission and DG Connect.** Helsper's research directly informed a six-step tool for designing and evaluating policies and interventions to improve digital inequalities. This tool made identifying the most socio-economically and socio-culturally vulnerable the starting point and reducing inequalities the benchmark of success of these interventions. This was a move away from earlier approaches that measured success based on the number of devices acquired and the number of individuals trained in digital skills. It was tested in six different initiatives across Europe and led to the Impact Assessment Framework for e-Inclusion Intermediary Actors. In turn, this provided the rationale for the i-FRAME Social Impact assessment framework proposal – a comprehensive framework for analysing the economic and social returns on investments of social policy innovations – and acts as a guide to gather insights into replicability and transferability of initiatives that promote social investment across the EU. The framework was presented in Lisbon in 2017 and was 'well received by stakeholders and policymakers' **[Q]**.

The above shows how Helsper's research impacted at local, national and international levels by changing how digital inequalities are measured by various stakeholder organisations and

institutions. These changes in measurement accompanied a related change in the frameworks used to design and evaluate interventions. Based on Helsper's research, there has been a shift in both measurement and practice away from access to ICTs and digital skills training as the main indicators of success, and towards examining whether and how ICT access and digital skills achieve beneficial socio-economic and socio-cultural outcomes. This shift in focus and design made digital policy and practice more effective and sustainable in tackling inequality in increasingly digital societies **[A]**.

5. Sources to corroborate the impact (indicative maximum of 10 references)

[A] Department for Education (2019) *National standards for essential digital skills*. April. Available at: www.gov.uk/government/publications/national-standards-for-essential-digital-skills

[B] Cabinet Office (2014) *UK Digital Inclusion Charter*. Government Digital Service, 4 December. Available at: www.gov.uk/government/publications/government-digital-inclusion-strategy/uk-digital-inclusion-charter

[C] de Senne, F.J.N. (2019). Mapping the origin of digital inequalities: An empirical study about the city of São Paulo. *Law, State and Telecommunications Review, 11*(1), 303–330. doi:10.26512/lstr.v11i1.24860**.**

[D] Supporting statement from the Director, Regional Centre of Studies on Information and Communication Technologies, Brazil (Cetic.br), 14 June 2019.

[E] Supporting statement from the Administrative Director, Brazilian Centre for Analysis and Planning (CEBRAP), August 2019.

[F] European Commission (2017) *DigComp 2.1: The Digital Competence Framework for Citizens*. European Commission and Joint Research Centres (JRC).

[G] Supporting statement from the Deputy Head of Unit, Human Capital and Employment, Directorate for Growth and Innovation, European Commission.

[H] Supporting statement from the Senior Analyst and Analyst, Centre for Educational Research and Innovation, Directorate for Education and Skills, OECD, 25 June 2019.

[I] ITU (International Telecommunication Union) (2018) *Measuring the information society report*, Volume 1.

[J] Supporting statement from the Senior ICT Analyst, Telecommunication Development Bureau, International Telecommunication Union (ITU), 19 June 2019.

[K] DCMS (Department for Culture, Media and Sport) (2017) *Digital Inclusion Evaluation Toolkit*, March.

[L] Supporting statement from the Head of Digital & Tech Analysis, Head of Digital Inclusion Policy & Diversity in Tech, and Lead Analyst – Digital Skills and Inclusion, Department for Culture, Media and Sport (DCMS), 18 July 2019.

[M] Supporting statement from the Development Manager, Social Tech Trust (formerly Nominet Trust), 12 September 2019.

[N] Social Tech Trust (2018) *Digital Reach Insights report*.

[O] Good Things Foundation: www.goodthingsfoundation.org/

[P] Supporting statement from the Chief Executive, Good Things Foundation, 19 June 2019.

[Q] Supporting statement from the Head of the Human Capital and Employment Unit, Directorate for Growth and Innovation, European Commission, 13 September 2019.