Coram-i project on Data Visualisation in Children's Social Care: evaluation

Summary

A small scale pilot project developed a data visualisation tool that could illustrate in a dynamic way how young people moved (or did not) through social care pathways. Considerable challenges were overcome in terms of data quality, privacy, and structure to develop this tool, requiring notable customisation for each of the three local authorities involved in the pilot. The tool may not be a solution in itself for all local authorities, but it has demonstrated the art of the possible. Perhaps more importantly, it has stimulated interest and discussion in the local authority data community about other and different ways of using data to improve outcomes for children and young people.

Introduction

In 2019, Coram published a report based on the pilot work utilising existing information concerning children in local authority social care (SC) to develop a digital tool that would allow professionals to visually evaluate children's journeys through the various SC and related services.[1] The prototype was developed collaboratively with Kent County Council, and a new phase of piloting the tool is being taken forward to include Oxfordshire and East Sussex County Councils.

The Nuffield Foundation funded this project, and as part of the grant conditions, an appropriately-scaled evaluation of the tool has been undertaken. This report sets out those evaluative findings, looking at both the technical and operational elements of its use in practice and offers a small perspective on the place of the tool in the wider data debate.
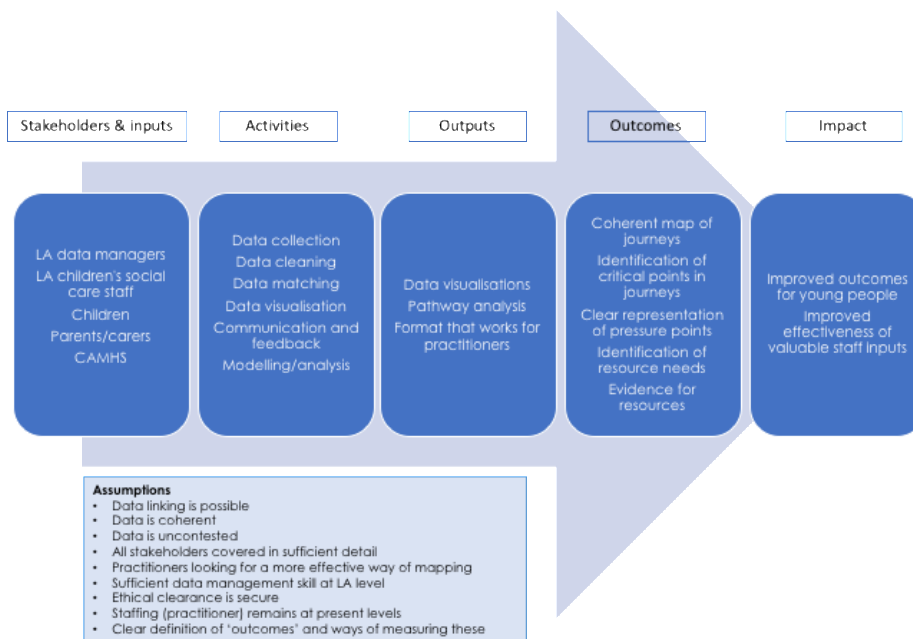
The approach

The project has been relatively small-scale, exploratory, and developmental and is not at a stage when a full-blown impact assessment can be undertaken. The evaluative approach at this stage is far more qualitative, attempting to understand how the original concept has been developed and what has been learned, and what might inform any next stage of development (if there is to be one).

Working with the project team, the critical technical (five) and operational stakeholders (up to 13) were identified, and interview guides were prepared for each group. In addition, the operational feedback sessions comprised three group interviews with staff in the local authorities who had some experience working with the data visualisation tool to offer an 'end user' perspective. Overall, 20 individuals provided feedback on this work.

The technical participants were drawn from local authorities taking part in the pilot and the Coram-i development team. A small number (three) of additional interviewees were included in the evaluation to help place the development of the tool in a broader context. A very early stage logic model (see below) for the project was developed following discussions with the team, which helped shape the interview guides.

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[1] https://www.coram.org.uk/news/coram-publishes-report-data-visualisation-children%E2%80%99s-social-care

| Stakeholders & inputs | Activities | Outputs | Outcomes | Impact |

| LA data managers
LA children's social care staff
Children
Parents/carers
CAMHS | Data collection
Data cleaning
Data matching
Data visualisation
Communication and feedback
Modelling/analysis | Data visualisations
Pathway analysis
Format that works for practitioners | Coherent map of journeys
Identification of critical points in journeys
Clear representation of pressure points
Identification of resource needs
Evidence for resources | Improved outcomes for young people
Improved effectiveness of valuable staff inputs |

Assumptions
- Data linking is possible
- Data is coherent
- Data is uncontested
- All stakeholders covered in sufficient detail
- Practitioners looking for a more effective way of mapping
- Sufficient data management skill at LA level
- Ethical clearance is secure
- Staffing (practitioner) remains at present levels
- Clear definition of 'outcomes' and ways of measuring these

The interviews (each lasting around 45 minutes) were conducted by video call. The process adopted adhered to the BERA 'Ethical Guidelines for Educational Research, fourth edition (2018). The interviews were conducted on an anonymous basis and were not recorded. All electronic and manual notes from the interviews will be destroyed within 12 months of the project's completion in August 2021.

The findings

There was widespread agreement amongst those interviewed that the data visualisation tool was a helpful development, and at the local authority level, it broadly 'rang true' with practitioners. The particular feature that attracted the most favourable responses was that it succeeded in drawing together data from different elements of service provision, something that was new and insightful. Interviewees also noted that data visualisations were powerful in other contexts and could help non-specialists understand the presented information. In addition, it had revealed patterns of activity (or lack of) that had otherwise not been visible.

Interviewees noted that the tool was descriptive rather than predictive (and that it handled historical data) and was not, it appeared, intended to be diagnostic at the individual level. This descriptive intention added an extra layer of reassurance about the privacy and security of the data. In addition, no data is transferred in or out of the local authority to generate the visualisation, thereby eliminating the risk of individuals being easily identified. If any prediction element were to be a feature of this model, considerable care and attention would need to be given to eliminating biases in any modelling and ensuring that appropriate permission had been secured to join up and use datasets in this way.

In creating any new data-driven system, combining different data sources, there are always challenges concerning the quality and format of the data concerned. This has been very evident in this project. Many of those involved in the technical development side observe that (unsurprisingly) agreeing on data formats and data cleaning has been a major activity behind the visualisation development. Several noted that having some pre-defined formats or agreed approaches to data standardisation would be helpful, or drawing it from systematic sources (such as Ofsted data returns) might help streamline the development process. A further challenge has been the different ways in which local authorities prioritise

or group elements of their children's services, which meant that a single model needed some degree of customisation in each of the three local authorities involved in this pilot stage. Nevertheless, several interviewees noted the tool's benefits in mapping data flows, connecting data sets, and helping to streamline data collection and reporting systems.

The simplicity of the visualisation was seen as a strength by some, helping to establish a fresh look at how systems work. However, others saw it as a weakness, suggesting that it may not add value and that other dashboards and systems (which had arrived during this pilot) were able to offer more depth. This has implications for how the tool is used, with near-universal support for deploying it strategically rather than as a front-line operational tool.

Interviewees saw the tool being used to step back from service delivery and to help them assess system-level performance on a monthly or quarterly basis, helping to identify trends and patterns to support arguments for system changes or generate new perspectives and questions. Developing a cross-local authority perspective by linking each of the individual visualisations was mentioned as a powerful future development, but this would bring additional and complex privacy and General Data Protection Regulation (GDPR) questions.

A further positive use of the tool, using it to help evaluate interventions, was suggested. In this context, practitioners and managers could implement an intervention and, using the visualisation tool, monitor how it affected the movement of young people through the systems.

Overall view and looking ahead

One interviewee noted that it was puzzling that technology and data science had such an impact on healthcare but had yet to make such in-roads in social care, particularly children's social care. There may be financial barriers, skills barriers, or cultural barriers (for example, trusting a model created outwith any given local authority or data ownership within a local authority). Still, this project has demonstrated that the technology to handle large and complex data in this domain exists. This approach can generate new and potentially purposeful perspectives on service delivery in local authorities, perhaps becoming a diagnostic tool, and has certainly challenged thinking about what can be done with data in a very tangible and visible way.

The technology deployed has eased concerns about data privacy and worries that individuals may be identified from the data presented. However, one interviewee commented that it was preferable to take a small risk concerning data access and data linking to shed new light on intractable children's service issues: the risk of not doing this was far greater than the risk of doing it.

Looking across the logic model, the development of this tool has demonstrated that the assumptions made are valid ones and that stakeholders, inputs, and activities described are realistic and capture the essence of what is being done. The outputs, so far, are also clearly relevant to how the tool is being used, with some specific requests (for example, more reporting on data outputs from the model). There is also emerging evidence of the outcomes identified in the model beginning to be visible, with interviewees noting how its introduction had supported journey mapping critical points in journeys. Over time, this may support re-thinking resource needs and increasingly accurate pressure-point identification. The tool has probably not been in use for long enough to offer much impact evidence; however, the logic model seems to be well-suited to its development.

This leads to the main challenges concerning taking this tool to the next level of development, which probably centres on two issues. One of these concerns generating

evidence of how the visualisation has been used to add value to decision-making and service delivery, now that there is good agreement about what the tool can do. The second, which is less a concern for the existing three local authorities in the pilot, may seem a little prosaic and predictable, but it concerns data quality and cleaning. For example, one estimate suggests data scientists spend 60% of their time wrangling and cleaning data compared with 9% analysing it and looking for patterns.[2] If there is an appetite to take this pilot further, then it would be valuable to use the experience of those concerned with this phase to support others wanting to replicate the visualisations in their local authorities, possibly via a convened and managed community of interest or practice group.

This pilot work has provided local authority colleagues with a challenge in reviewing and agreeing on pathways that accurately and reliably describe how children and young people move through social care and related systems. Addressing this challenge has also required notable expertise and time from individuals to wrangle and manage disparate data sets into alignment for the purposes of the visualisation. This could have dissuaded developers and users from engaging with the tool. However, it appears to be identifying issues and questions which (at the strategic rather than the operational level) are novel and helpful and could throw light on ways to serve children and young people better, and it is possible to say that it has demonstrated a degree of value to most of those who have used it. However, the tool has had less impact in areas where local authorities were already taking steps to combine data and examine co-dependencies.

Perhaps the most important outcomes of this work have been demonstrating what it is possible to do with SC data and challenging thinking about linking and using data in novel ways (ways that may be seen as part of the landscape in other professional domains). The work has also shown ways to manage GDPR challenges and data quality complexities. Finally, it has also stimulated conversations about how local authorities are, beyond this pilot, finding ways to make their data work harder for them.

This latter point may signal the most useful way forward from this pilot. Whilst there may be misgivings about utilising an externally created visualisation model across 151 councils in England, being able to show what it has done to a wider audience may unearth more, different and possibly better ways of using data visualisation to improve children's social care outcomes. Establishing a community of interest may help showcase effective practice and problem-solve as local authorities develop their approaches to using data.

March 2022

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[2] https://blog.ukdataservice.ac.uk/data-pre-processing/