

Transforming information systems design and use in social welfare agencies

ARC Future Fellowship (FT170100080)

4 years – 18 months in.

2013 to 2015 ARC Discovery Early Career Research Award (\$303 000)

Potted version today – 24 published articles listed at end.

My interest

As a social work practitioner.... (16 years)

As a “closet techie”.



PhD on *Structured Decision Making* tools, embedded in the ICMS.

Gillingham, P. (2009) *The use of assessment tools in child protection: an ethnomethodological study*. University of Melbourne. Published online at: <http://repository.unimelb.edu.au/10187/4337>

Research Project Background

Ethnography – observation (participatory) and interviews with managers, team leaders, practitioners, IT managers... From choosing IS, specifications, implementation, evaluation.

Theoretically **social informatics**: “the interdisciplinary study of the design, uses and **consequences** of information technology that takes into account their intersection with institutional and cultural contexts” (Kling, 1999, p. 1).

Research Project Background

NGOs in Queensland, New South Wales, Victoria and Scotland.

Governments – Australia, New Zealand, England, Ireland...

Different stages of design, implementation, evaluation.

Ongoing recruitment.

Key idea

Engineering systems theory (Hollnagel and Woods, 2005).

2 principles:

1. Technology must enhance our ability to do something and/or

2. Make possible something that we could not previously do (*something useful*).

“[u]nfortunately, the extensive use of computers has created an equally large number of possibilities for making simple tasks unnecessarily complex” (Hollnagel and Woods, 2005, p. 37).

Hollnagel, E. and D.D. Woods (2005) *Joint Cognitive Systems: Foundations of Cognitive Systems Engineering*. Boca Raton, FL: CRC Press.

What's the problem?

- they **impair the decision making** of frontline practitioners

IS configure the user, impose a form of logic that does not apply to social and individual problems

What's the problem

- they are not "fit for purpose"

IS not specifically designed for social work. Old fashioned transactional databases modified to include social work lexicon and processes.

What's the problem?

- they are over-complex and a source of frustration to practitioners

Hundreds of possible fields to fill in, complicated by workflows that follow from this.

What if circumstances change and affect an assessment or decision?
Can't go backwards through workflow or change assessment, have to wait for helpdesk (up to two weeks).

What's the problem?

- the demands that they make of practitioners' work time take them away from the core business of working with the clients of social welfare agencies

Practitioners expect to spend from half their time up to 80% servicing the IS rather than working with service users. Many admin tasks have been transferred to social workers, admin support diminished. Recent fieldwork, all admin transferred to social workers, remaining admin no access to IS.

What's the problem?

- they are costly to purchase, implement and maintain but impair rather than improve organisational efficiency

Austerity measures in England...reduced numbers of staff...yet still spending millions on IS.

No evidence that services are improved.

Solutions - theoretically

Procedural modelling (IS) vs contextual modelling (social work)

Different forms of logic limit the utility of IS for social workers, hence lower expectations, reduce workflows = information repository (rather than complex IS based on a practice framework like *Signs of Safety*).

Solutions - practically

Participatory design- what information must be recorded, by whom, when and why (minimal dataset)

Clear rationale – evaluation, developing algorithm based decision support tools, accountability

Solutions - practically

Simplicity rather than complexity

Admin support – get social workers back to working with service users mostly.

Current developments

- Predictive risk modelling using admin data
- Algorithm based decision support tools

Modeling and predicting which service users need more services or early intervention...

Predictive risk modelling in child protective services in New Zealand. Millions of dollars spent but project abandoned – *mislabeled data*.

Rapid Safety Feedback program in Chicago – shut down after it became wildly inaccurate – it assigned a 100% chance of death or serious injury in the next two years to 369 children, all under age 9 – *sample bias*.

Problems were foreseeable.

Better models are being developed but....

Need better quality data (accuracy and completeness) to improve upon accuracy at 70-80%.

The future

Simple but accurate datasets created by social workers with admin support about service delivery... (inexpensive comparatively, social workers to spend 80% of time working with service users).

Datasets that contain information pertinent to evaluation, accountability and research (including possible predictive risk modelling).

How we do that is contained in the following published articles:

Gillingham, P. (in press) Can predictive algorithms assist decision making in social work with children and families? *Child Abuse Review*

Gillingham, P. (2019) Algorithms, social policy, social justice and social work: principles of algorithmic accountability. *Practice: Social work in action*, 1-14.
<https://doi.org/10.1080/09503153.2019.1575954>

Gillingham, P. (2019) Developments in electronic information systems in social welfare agencies: from simple to complex. *The British Journal of Social Work*, 49, 1, 135-146.

Gillingham, P. (2018) From bureaucracy to technocracy in a social welfare agency. *Asia Pacific Journal of Social Work and Development*, 1-15.
<https://doi.org/10.1080/02185385.2018.1523023>

Gillingham, P. (2018) Decision making about the adoption of digital technology in human service organizations: some key considerations. *European Journal of Social Work*, 21, 4, 521-529.

Gillingham, P. (2017) An exploration of the feasibility of a national database to protect children in Australia. *Developing Practice*, 46, 56-68.

Gillingham, P. (2017) Predictive risk modelling to prevent child maltreatment: insights and implications from Aoteaora/New Zealand. *Journal of Public Child Welfare*, 11, 2, 150-165.

Gillingham, P. & Graham, T. (2017) “Big data” in social welfare: The development of a critical perspective on social work's latest “electronic turn”. *Australian Social Work*, 2, 135-147.

Gillingham, P. (2017) Electronic information systems in human service organisations: using theory to inform future design. *International Social Work*, 60, 1, 100-110.

Gillingham, P. (2016) Technology configuring the user: implications for the redesign of electronic information systems in social work. *The British Journal of Social Work*, 46, 2, 322-338.

Gillingham, P. (2016) The use of electronic information systems to guide practice in social welfare agencies: the perspectives of practitioners as end users. *Practice: Social Work in Action*, 28, 5, 357-372.

Gillingham, P. (2016) Electronic information systems and human service organisations: the needs of managers. *Human Service Organizations: Management, Leadership & Governance*, 40, 1, 51-61.

Gillingham, P. (2016) Predictive risk modelling to prevent child maltreatment and other adverse outcomes for service users: inside the “black box” of machine learning. *The British Journal of Social Work*, 46, 1044–1058.

Gillingham, P. & Graham, T. (2016) Designing electronic information systems for the future: facing the challenge of New Public Management. *Critical Social Policy*, 36, 2, 187-204.

Gillingham, P. (2015) *Electronic information systems and social work: principles of participatory design for social workers. Advances in Social Work Special Issue: Technology, the Internet & Social Work Practice*, 16, 1, 31-42.

Gillingham, P. (2015) Electronic information systems in human service organisations: the what, who, why and how of information. *The British Journal of Social Work*, 45, 5, 1598-1613.

Gillingham, P. (2015) Implementing electronic information systems in human service organizations: the challenge of categorization. *Practice: Social Work in Action*, 27, 3, 163-175.

Gillingham, P. (2015) Electronic information systems and human service organizations: the unanticipated consequences of organizational change. *Human Service Organizations: Management, Leadership & Governance*, 27, 3, 89-100.

Gillingham, P. (2015) Electronic information systems and human services organisations: avoiding the pitfalls of participatory design. *The British Journal of Social Work*, 45, 2, 651-666.

Gillingham, P. (2014) Electronic information systems and social work: who are we designing for? *Practice: Social Work in Action*, 26, 5, 313-326.

Gillingham, P. (2014) Information systems and human service organizations: managing and designing for the "occasional user". *Human Service Organizations: Management, Leadership & Governance*, 38, 2, 169-177.

Gillingham, P. (2014) Repositioning electronic information systems in human services organizations. *Human Service Organizations: Management, Leadership & Governance*, 38, 2, 125-134.

Gillingham, P. (2013) The development of electronic information systems for the future: practitioners, "embodied structures" and "technologies-in-practice". *The British Journal of Social Work*, 43, 430-445.

Gillingham, P. (2011) Computer based information systems and human service organizations: Emerging problems and future possibilities. *Australian Social Work*, 64, 3, 299-312.