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Case Study Research and the need for mixed methods

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What is the concern about case study design

- Case studies have been used for many years as a hallmark in social sciences research.

- Used in early work to create ground breaking research in theory building when many key variables and relationships were being explored.

- Used in situations where the variables outstrip the number of data points

- Those who follow a positivist tradition using large data bases, criticise the Case study approach as lacking validity

Issues with Case studies

- Architects have trouble when citing case study results to positivist medical people who only hold to be valid the evidence of a double blind trail.

- The late Per Sher always said if we get into a debate with about this aspect of our architectural work, we will always lose and should draw on methods that are valid social science approaches.

- Architects are guilty of not carrying out Case Study research properly by using simple presentations of their work as case study material. This has no validity and will not be convincing.

What constitutes Genuine Case Studies

- Case studies need to have elements that make them rigorous. There can be multi-method research studies which have some quantitative material (statistics) as well as qualitative data.

- Firstly they need to study matters in their context rather than independent of their context. This leads well to architecture and design studies where they are context dependent.

- Secondly it is usual to collect qualitative data such as questionnaires and analysis from participants in user groups.

- In this instance there are many ways to test the rigour of the case material but the four key criteria are: **Internal validity, construct validity, external validity and reliability**

The elements of a good case study

Internal Validity called "logical validity" by Yin, deals with the causal relationship in the analysis phase between variables and results.

The first thing to do is establish a *clear research framework* that demonstrates variable X leads to outcome Y and is not spuriously caused by variable Z. Secondly through *pattern matching* by comparison with empirically observed patterns, or expected patterns from other research. Thirdly by adopting *Theory triangulation* this enables validation by being able to adopt multiple perspectives.

Construct Validity deals with the investigations stage and as such deals with the extent to which the study investigates what is intended to be investigated. It is concerned with the procedures that leads to an accurate investigation.

The best way to do this is to establish a clear chain of procedures that allow another reader to follow the research. Also the use of *triangulation* enables the researcher to look at evidence from different perspectives.

Building a Case Study

External Validity normally is concerned with "generalizability" or the ability to infer information about a population. Case studies don't have statistical generalisability but they do have analytical generalisability which means they can infer matters from observations to a particular theory.

Cross-case analysis with from 4 -10 studies is a good way to provide a base for analytic generalisability.

Reliability refers to the absence of random error. The question is whether other following researcher find the same conclusions if they follow the same procedures? The key words here are transparency and replication.

Transparency depends on careful measures to document research procedures and reliability is gained through building a case study data base, including case notes.

Aged care research study

- Case study was to look at 7 cases each being the physical interventions from an earlier study and determine what was successful what was not.

- The intervention covered garden designs, some internal partitions and some changes to larger spaces for smaller ones in dining areas.

- We knocked out a door way to a bedroom in one facility changing the location of the door to make a small lounge facility giving residents a place to sit in the hall way.

- To increase the validity we made a cross-case study and developed themes from the analysis of the 7 cases.

Themes from the study

There were 3 themes that came out of the study.

1. The significance of the type of physical interventions and the priority various spaces had for staff and residents

2. The changes to quality of life for residents in terms of changes to behaviour

3. The effect of person-centred care training on staff attitudes.

From the first theme early findings were that where people had had training in person-centred care they were enthusiastic to make changes and so could work with the new spaces to improve care.

Where they had not done the training they didn't change attitude and spaces were not used effectively.

Themes from the study

- Another theme was that where staff were not involved in the changes or in making the change they were ignorant of intent and so the changes so had little effect.

- It is held that the reason architects and designers don't have the necessary impact on facilities is that they don't know what changes to make despite the dearth of material out there.

- I would suggest that our analysis shows it is not the lack of education. There are numerous guides and good production manuals in circulation.

- It is that architects must take the views of clients into account and the client and carers come at the problem for a technical basis related to cost and ease of management, so don't want to change their views for a psycho-social perspective.

Concluding Themes

- It turns out that staff are considered the most important element in gaining quality of care and providing Quality of Life. Physical environments only help staff but don't contribute to quality of life on their own.

- The physical environments enable staff to allow residents to have self-control in wandering and in achieving Activities of Daily Living but staff who demonstrate they care are the ones that make the difference. However ensuring design for outdoor activities is essential.

- Physical spaces that are organised to reduce stress add to Quality of Life and to socialising in communal spaces. This includes the reduction of resident numbers and having smaller group activities.

- Staff Training in person-centre care is essential to maintaining a good Quality of Life for residents.

Themes

- The second order effect is that staff in residential care facilities unlike staff in hospitals are not required to have very high levels of skill so their views are ignored by management.

- Renovations are important and can be achieved for low cost – everyone unfortunately is focussed on the new build so underrate renovations.

Mental Health Case Studies – 7 sites

Objectives

1. To identify the key environmental characteristics that make units "fit for purpose"
2. To investigate the relationship between the acute mental health care built environment and safety.
2. To apply patient safety and quality improvement models to the acute mental healthcare environment.

Aims

1. To understand how the physical, social and symbolic environments of care affect staff reported safety climate in acute inpatient mental healthcare environments.
2. To evaluate the impact of evidence based changes in the built environment on staff perceptions of aggression and violence.
3. To evaluate the impact of evidence based changed in the built environment on the use of seclusion.

The creation of safety in mental health facilities trust, law and policy

Trust Produces Safety
Safety… results from good relationships in interactions and the **trust** that is built up between individuals." *RC Psych 2011*

Human Rights Mandate:
"Every patient shall have the right to be treated in the least restrictive environment and with the least restrictive or intrusive treatment." *United Nations (1991) Principles for the Protection of Persons with Mental Illness Principle 8. 1991*

"Every patient shall be protected from harm…acts causing mental distress or physical discomfort."
United Nations Principles for the Protection of Persons with Mental Illness and for the Improvement of Mental Health Care. Principle 9. 1991

Flowers are colourful   find your way

the [...] is green

life is [...]

Find   your   dream

♡ Marilyn

TRUST

Social Geography of the Therapeutic Environment: the literature

- **Physical environment – physiological responses**
    - Environmental comfort and natural light
    - Manageable circulation and way finding
    - Manage perceptual distortions – avoid confusing element; include sensorial spaces

- **Social environment – coherence and manageability**
    - Territoriality & crowding
    - Privacy and control over the timing of social interaction
    - Positive distractions/Activities
    - Spiritual Needs

- **Symbolic environment – comprehensibility**
    - Trust and Refuge
    - Recovery and Growth Respect and Self-Control

Cross-case Analysis to increase External Validity

Mixed method study design was intended to adduce a sufficient triangulation of data to build a rich picture of complex interactions

Purposive Case Selection

Case studies selected by:

- location (tertiary referral (2), rural (2), outer urban (2), inner urban (1))
- patient profile and service role (intensive care (2), acute (4), rehabilitation (2), adolescent (1))
- procurement method (Traditional (2), Design and Construct (2) and Private Public Partnership (3))
- change management strategies (strategic planning process (2), inception change team (2), technical commissioning (3))

Issue

Data sufficient for triangulation only available for 4 sites

Mixed Methods used to increase Internal Validity

1. **Documents and Artefacts**
   - Planning and Development Process documents
   - Post Occupancy Evaluations
   - Remedial works
   - Comparison of spaces and flows against benchmarks
   - Utilisation data

2. **Site Visits**
   - "walk through-talk through"
   - hidden dimension

3. **Key Informant Interviews**
   - 52 hour of talk time
   - 3 Focus Groups (one facility only)

Mixed Methods used to increase Internal Validity

4. **Photo-elicitation of meaning using repertory grid technique**

5. **Quasi-experimental – interrupted time series – one site**
    - Single group acting as its own control
    - Seclusion incident data (refurbishment and rival explanations interruptions)
        - Insufficient data points
        - Ecological changes:
            - new policies,
            - new units,
            - new staffing protocols,
            - new personnel
            - New CEO

6. **Safety climate survey**
    - Essen CES – only 15 items on 3 dimensions
    - Summed scores compared against norms for acute units

The Semantics of Acute Mental Health Care Environments

Arrival Spaces

Private (Calming) Spaces

Circulation Spaces (Public Areas)

Interaction Spaces

Dining Spaces

Empty v Welcoming
Cold v Open
Trapped v Warm

Which? Why?

Which? Why?

Which? Why?

Which? Why?

The Visual Language Of Mental Health Care:

Which two spaces are Similar?

Why?

Eliciting Bipolar Semantic Constructs

Understanding the meanings attached to concrete elements in the life world of the staff.
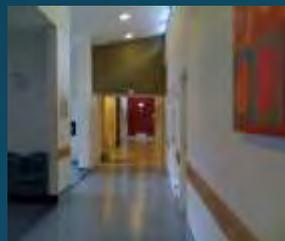
Learning how safe staff feel in their workplace .

The Semantics of Acute Mental Health Care Environments

Social Spaces — Which? Why?

Gardens — Which? Why?

Bathrooms — Which? Why?

Bedrooms — Which? Why?

The Visual Language Of Inpatient Acute Mental Health Care:

Which two spaces are Similar?

Why?

Eliciting Bipolar Semantic Constructs

Understanding the meanings attached to concrete elements in the life world of the staff.

Learning how safe staff feel in their workplace .

Analysis of Qualitative Data

Narrative Analysis

- Sense making determined by professional identity
- Role conflict between managers, planners, bureaucrats, senior clinicians, junior clinicians, risk managers
- Incompatible cultures

Thematic Analysis

- Seven key themes emerged from the data
    - **Risk v Therapy**
    - We are the client
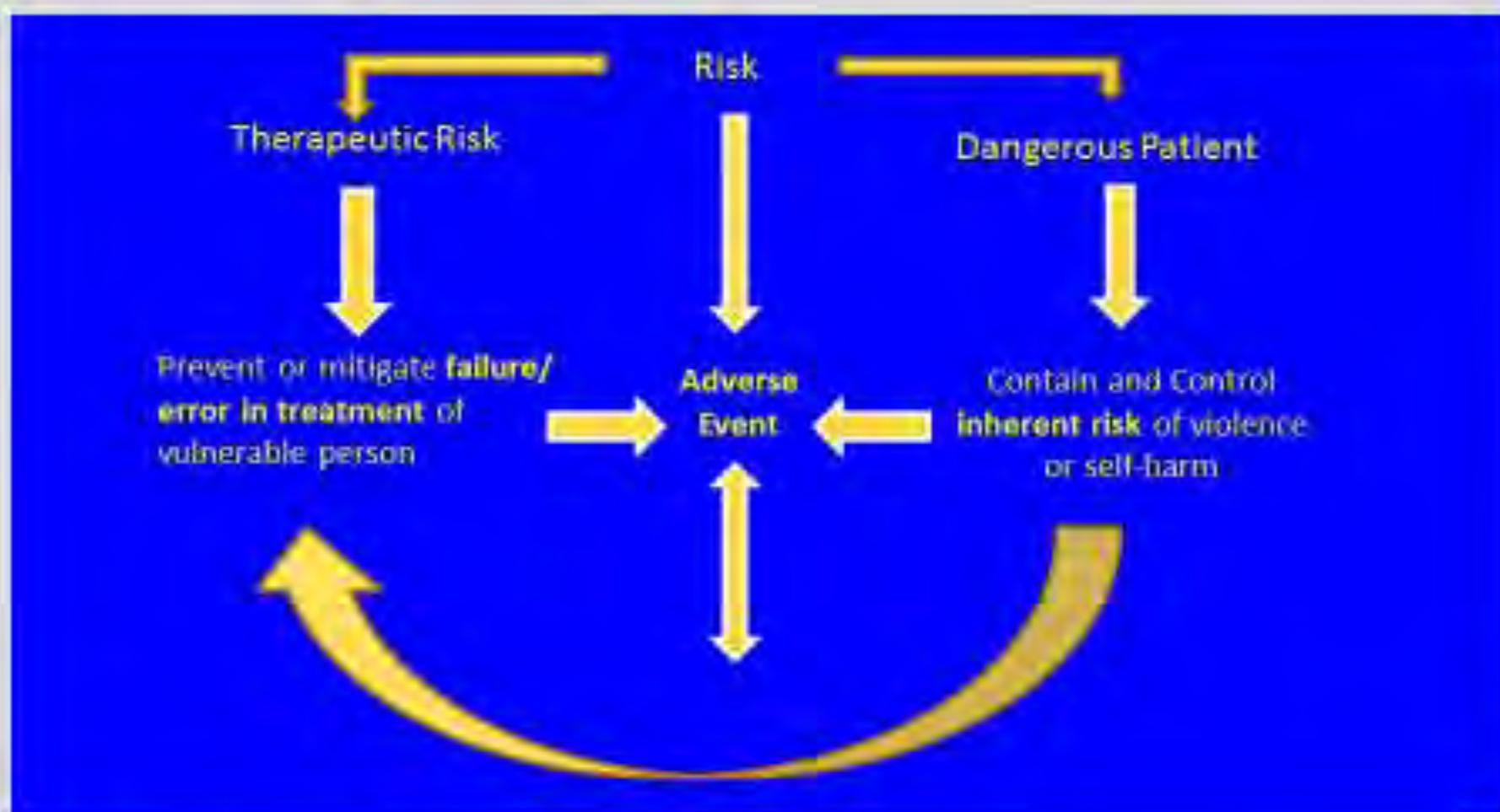   - Planning is not linear
    - Poor communication destroys trust
    - Governance is key – but the decision makers keep changing
    - Guidelines are expendable

Conflicting Conceptions of Risk

The Physical Environment and Trajectory to Harm (decisions makers & iatrogenic (sanctuary harm)

Latent Errors – error producing conditions

Physical Environment:
Bodily discomfort - Climate control; Poor Lighting; Air quality; Crowded, Noisy

Active Errors – care management problems

Adverse Event

Social Environment:
Crowded, Inability to control the timing of social interactions; No Privacy; Poorly contrived group spaces

Confrontational Interaction – failure in trusting therapeutic relationship

Acts of Violence & Seclusion

Symbolic Environment:
Overt security; Institutional and/or Punitive environments; Ugly spaces

Lessons and the Future

Given the therapeutic purpose of mental healthcare:
- Trusting relationships are key
- Error in mental health care is a negative trajectory in interactions.

Fundamental principle of patient safety thinking in design is applicable
- Latent conditions for unsafe practice and human error can be built into the physical environment and impact negatively on the quality of care
- These latent condition are created by decision makers

Future Directions – how strong must the proof be?
- The built environment influences the trajectory of patient-clinician interactions in acute mental health
- The built environment influences **trust building behaviour**
- The built environment influences patient outcomes.