Poster Design Workshop

- For MSc in Applied Systems Analysis
- Topic: Addiction, Mental Health, and Relapse
- Using Causal Loop Diagrams (CLDs)
- Presented by: Dr Xavier Matieni

Purpose of This Session

- Help you design a compelling academic poster
- Explain structure, layout, and content expectations
- Guide you on CLDs, validation, and systems thinking tools
- Prepare you for clear communication and academic rigour

Why Posters Matter

- A poster is your research story at a glance
- Combines visuals + systems thinking + theory
- Engages both academic and practitioner audiences

Start With Your Rationale

- Define why relapse matters
- Use evidence: statistics, quotes, policy gaps
- Systems view: Relapse is complex and dynamic
- Cite sources like Meadows (1999), NICE (2023)

Aims and Objectives

- Aims: What is the poster trying to achieve?
- Objectives: Steps to get there
  - Map causal relationships
  - Identify feedback loops
  - Suggest leverage points
  - Propose interventions

Suggested Poster Structure

1. Introduction
2. Theoretical Background
3. Causal Loop Diagram (CLD)
4. Variable Definitions
5. System Behaviours
6. Proposed Interventions
7. Validation (Goldratt)
8. References

Design Tips for Layout

- Use 2-3 columns (Left → Right or Top → Bottom)
- Use 24pt+ font for body, 48pt+ for titles
- 60% visuals / 40% text
- Align elements and leave white space

Visual Aids to Include

- Causal Loop Diagram (central visual)
- Use Tree / Cause Tree
- Table of Variables + Definitions
- Simple chart or bar graph (optional)
- Icons and colour coding for clarity

Creating a Causal Loop Diagram (CLD)

- 15–20 (or more) variables
- Show polarity (+/-)
- Label loops: R (reinforcing), B (balancing)
- CLD = core system insight
- Example: 'Isolation → Alcohol Use → Shame → Relapse'

CLD Example: Visual Structure

- R1: Isolation Loop
- Isolation (+) → Alcohol Use (+) → Shame (+) → Isolation
- B1: Recovery Loop
- Support Services (–) → Isolation → Alcohol Use

Frameworks to Apply

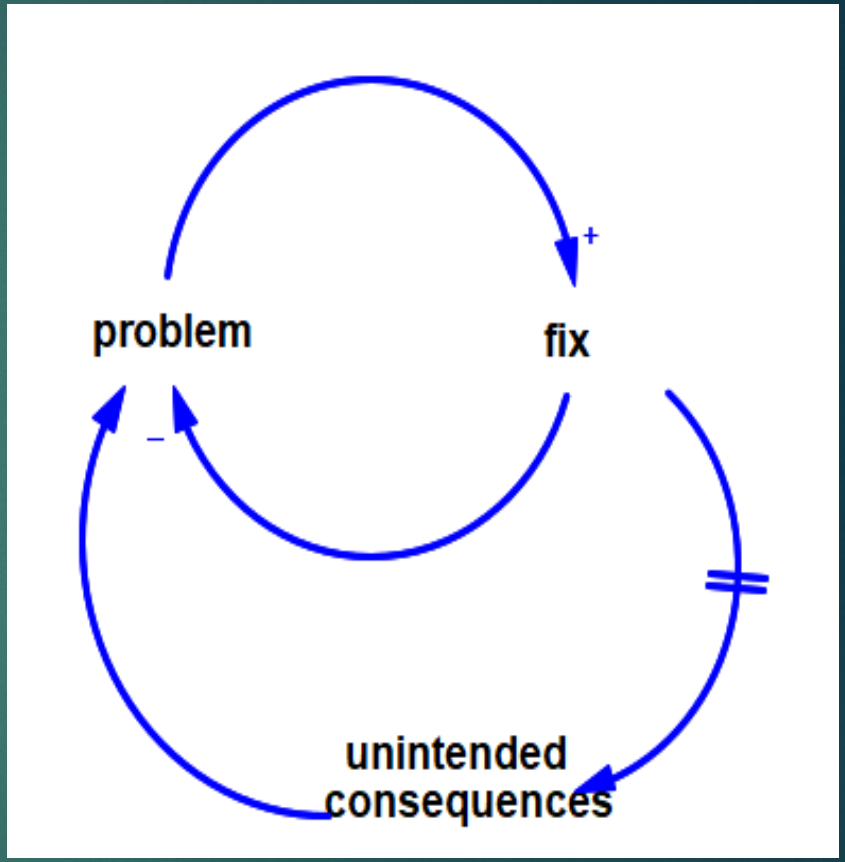
- Meadows’ leverage points (info flow, rules, goals)
- Senge’s system archetypes (e.g. ‘Fixes that Fail’)
- Midgley’s boundary critique
- Naumann et al. (2022) on addiction systems

Meadows' Leverage Points (1999)

- Leverage points - Places in the system where a small change could lead to a large shift in behaviour
- Deepest places to intervene in a system – leverage points are points of power.
- E.g. Info flows, rules of the system, goals
- Example: Changing relapse treatment policy has more leverage than increasing clinic hours

Senge's System Archetypes

- Common patterns of system behaviour (e.g., 'Fixes that Fail')
- Addiction policies often treat symptoms, not structures
- Use archetypes to understand recurring traps



Midgley’s Boundary Critique

- Questions who/what is included or excluded in system analysis
- Helps uncover stakeholder blind spots and ethical dimensions
- Encourages transparency in model design

Naumann et al. (2022) on Addiction Systems

- Addiction is a dynamic, feedback-driven process
- Social networks, stigma, trauma, and recovery interact
- Use CLDs to map these systemic influences and target leverage

Identifying Interventions

- Use leverage points to suggest change:
  - Expand support services
  - Anti-stigma campaigns
  - Mental health triage
  - Peer recovery networks
  - Early follow-up appointments

NICE Recommendations (2023)

- Offer psychological & pharmacological relapse prevention
- Support transition after detox
- Help access peer/self-help groups
- Target stigma as a systemic barrier

Goldratt’s CLD Validation: Definition

- Goldratt’s CLD Validation is a rigorous method to assess the logical integrity of a causal loop diagram (CLD).

It asks six critical questions:

1. Clarity – Are the terms clear and well-defined?
2. Cause Exists – Is there a real-world cause for the effect?
3. No Missing Cause – Have you identified all key drivers?
4. No Cause/Effect Reversal – Is the direction correct?
5. No Tautology – Is the statement non-circular?
6. Predicted Effect – Is the outcome supported by evidence?

Goldratt’s CLD Validation: Example

- Example Causal Link: 'Stigma (+) → Isolation (+) → Relapse'

- Validation:

  - Clarity: Terms like 'Stigma' and 'Isolation' are defined using WHO guidelines.

  - Cause Exists: Literature shows stigma increases social withdrawal (Corrigan et al., 2009).

  - No Missing Cause: Peer support excluded? Add as counter-influence.

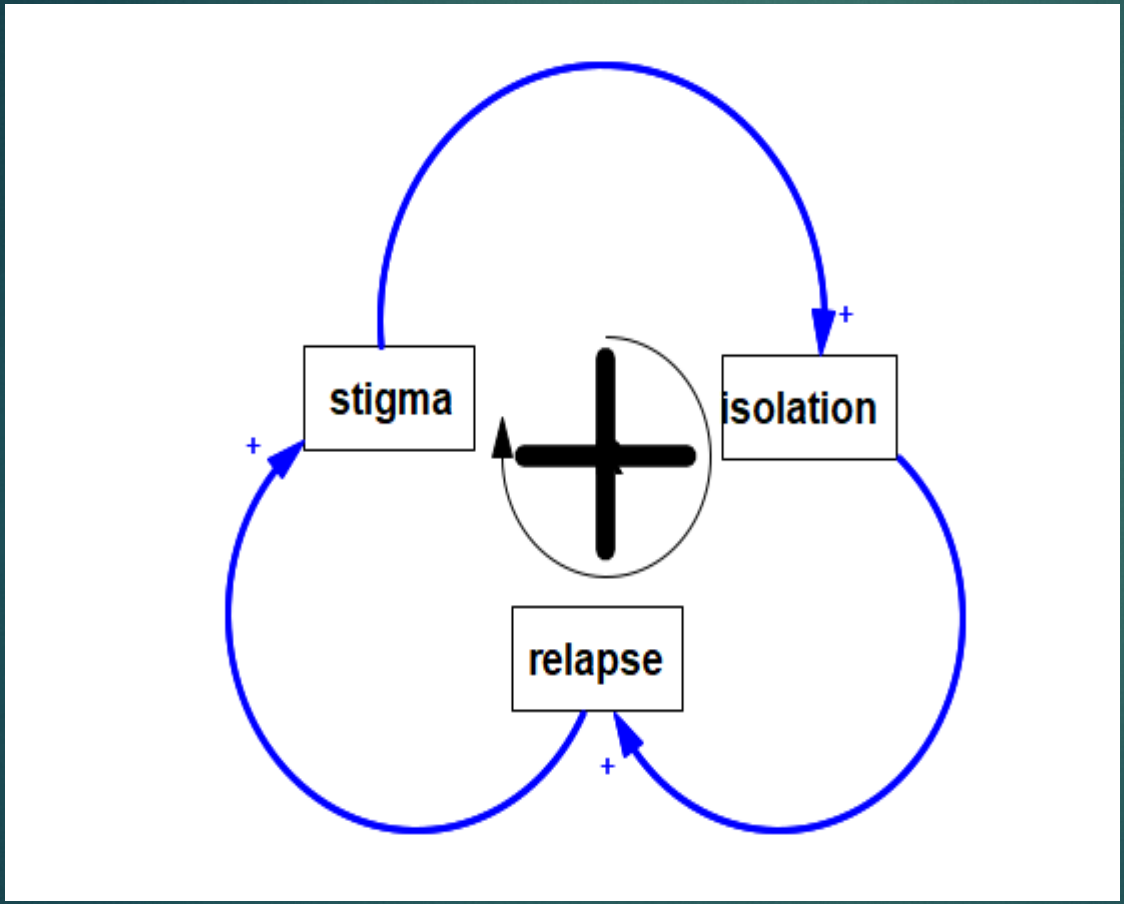
  - No Reversal: Correct—stigma precedes isolation.

  - No Tautology: The terms are not circular.

  - Predicted Effect: Studies validate that isolation increases relapse risk.

- ✓ This loop is validated and ready for poster use.

Validation: Example



Tips for Validation

- Annotate your CLD with literature
- Define your loops clearly
- Be ready to explain causal links
- Use short evidence blurbs (short descriptions) to support variables

Communicating Effectively

- Use active, concise text
- Speak to both system dynamics & lived experience
- Avoid jargon unless defined
- Practice your explanation out loud

Preparation is Key

- Draft > Refine > Peer review
- Use a template for poster layout
- Share drafts early with Lecturers
- Rehearse your explanation to peers

Digital Tools for Poster Creation

- Microsoft PowerPoint (landscape A1 size)
- Canva (poster templates)
- Lucidchart / Vensim for CLD diagrams
- Use Google Fonts and export to PDF

Final Checklist Before Submission

- Aim & Rationale clearly stated
- CLD well-structured with polarity
- Interventions aligned with loops
- Validation step included
- Harvard References listed

References

- Meadows, D. (1999). Leverage Points
- NICE QS11 (2023). Alcohol-use disorders
- Naumann et al. (2022). Addiction and SD modeling
- Burns & Musa (2001). CLD Validation
- Senge, P. (1990). The Fifth Discipline