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University of Wales
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BMBM5020– Changemakers; creativity and value creation

Trawsnewid Addysg, Trawsnewid Bywydau
Transforming Education, Transforming Lives

Week 3: Finding the Right Problem, Design thinking, evidence and problem framing



Learning outcomes for today



Explain the principles of **design thinking and human-centred design**.



Analyse organisational problems using bounded rationality, wicked problems, Fishbone analysis and Five Whys.



Explain why bounded rationality and wicked problems can make organisational problems difficult to define.



Distinguish between **observations, assumptions, evidence and interpretations**.



Frame and reframe problems in response to new evidence.



Develop an evidence-informed **How Might We...?** question for an innovation challenge.

Finding the Right Problem

What if the problem you're trying to solve isn't the actual problem?

Opening Challenge: The Empty Lecture Theatre

The problem: Students aren't attending classes

Your challenge: You have been asked by the university to improve attendance

In teams, spend **5 minutes** generating possible solutions.

What evidence do you have that attendance itself is the real problem?

- What do we actually **know**?
- What have we **assumed**?
- Whose **perspective** is missing?
- What would we need to **investigate** before **intervening**?

What Happens When We Ask the Stakeholders?

Student A

“Everything is uploaded online, so I don't understand what I gain by being physically there.”

Student B

“I attend most weeks, but I don't really understand how the activities connect with the assessment.”

**An observation tells us what appears to be happening.
It does not automatically tell us why it is happening.**

Student C

“I work alongside university and my employer sometimes schedules me during classes.”

Bounded Rationality

Bounded rationality (1957) is a decision-making theory developed by Herbert Simon; it suggests that people cannot always make completely rational or perfect decisions because their ability to process information is limited, therefore, people do not always find the *best* solution. They often settle for a solution that seems "good enough"

Why?

- Decisions are made with limited information
- Time pressures encourage quick judgements
- People cannot process all available information
- As a result, people often rely on assumptions and shortcuts

The Solution Trap

A solution can be technically excellent and still fail if it addresses the wrong problem

Observed situation

Students are not attending.



Interpretation

Students are disengaged.

Which of these statements do we have evidence for?



Assumption

Increasing attendance will improve learning.



Solution

Make attendance compulsory.

ASSUMPTIONS VERSUS EVIDENCE

Observation

What have we actually seen?

Attendance has decreased over the last four weeks

Evidence

What information supports the claim?

Attendance records

Interpretation

What do we think the evidence means?

"Students may not see the value of attending"

Assumption

What are we currently treating as true without sufficient evidence?

"Students don't care about their degree."

Human-Centred Design

Human-Centred Design is a philosophy and approach to problem-solving that places people affected by a problem at the centre of the process. Rather than starting with what an organisation wants, what technology can do, or what managers believe is needed, HCD starts by understanding:

- People's needs
- Experiences
- Behaviours
- Emotions
- Challenges
- Motivations

Design thinking

- Design Thinking is a structured process for applying human-centred principles to innovation and problem-solving: it focuses on understanding people's needs and developing creative solutions to their problems. Instead of immediately deciding what the solution should be, you first understand the problem from the user's perspective, generate ideas, and test which solutions work best.
1. Empathise; understand user's needs
 2. Define; identify the problem
 3. Ideate; generate possible solutions
 4. Prototype; create a solution
 5. Test; evaluate/ improve

What Does Empathy Mean in Design Thinking?

- Within design thinking, empathy involves trying to **understand another person's experience, needs, behaviour and context from that person's perspective**
- What might we learn by looking at the problem through the stakeholder's experience rather than the organisation's perspective?

Problem Framing

- Problem framing refers to **how a problem is defined, described, or understood**.
- Rather than accepting the first explanation that appears, changemakers explore the issue from different perspectives, gather evidence, and identify the root cause.
- The way we define a problem influences the solutions we generate

Examples

Problem frame 1:

Students are not attending workshops.

Possible solutions:

- Make attendance compulsory.
- Send reminder emails.
- Monitor attendance.

Problem frame 2:

Students do not see sufficient value in attending workshops.

Possible solutions:

- Improve workshop activities.
- Demonstrate links to employability.
- Include more practical tasks.

Problem frame 3:

Commuting students face barriers to attending workshops.

Possible solutions:

- Hybrid delivery.
- Different scheduling.
- Recorded resources.

Same situation
Different problem frames
Different solutions

Five Whys

The Five Whys is a questioning technique used to move beyond an initial symptom by repeatedly asking: **Why is this happening?**

The purpose is to investigate the chain of possible causes instead of accepting the first explanation

Example: Students are not attending a workshop.

Why?

Some students do not perceive sufficient value in attending.



Why?

They believe the online materials provide what they need.



Why?

They do not recognise what the workshop activities add.



Why?

The relationship between workshop activities and assessment is unclear.



Why?

The purpose and intended learning from the activities may not have been communicated sufficiently.

Initial problem

How might we **increase attendance?**

Reframed problem

How might we help students
**recognise and experience the
additional value of
participating in workshops?**

Fishbone Diagram

- Developed by **Kaoru Ishikawa**, the Fishbone Diagram is a root-cause analysis tool used to identify and organise the multiple factors that may contribute to a problem.

Fishbone asks:

"What are all the possible causes of the problem?"

- People
- Environment
- Communication
- Organisation
- Resources

Fishbone Diagram: example

Problem: Students are not attending workshops.

Fishbone Analysis:

- **People:** low motivation, anxiety about participation
- **Organisation:** poor scheduling, timetable clashes
- **Communication:** students did not see emails, workshop purpose unclear
- **Environment:** transport issues

Fishbone vs Five Whys

Fishbone Diagram: Explore **multiple possible causes** of a problem, encourages broad thinking

Five Whys: Investigate **one cause in depth**

Fishbone = breadth

Five Whys = depth

Break



Problem Reframing

- **Reframing** means looking at the problem differently to uncover new opportunities for change.

For example:

Original Frame

"How can we make students attend workshops?"

Reframed

"How might we make workshops valuable enough that students want to attend?"

The second question is more human-centred and may lead to more innovative solutions.

Wicked Problems

The concept was introduced by **Rittel and Webber (1973)**: The key idea is that wicked problems are not solved; they are managed, improved, or addressed

A wicked problem is a problem that is:

- Complex
 - Difficult to define
 - Influenced by multiple factors
 - Viewed differently by different people
 - Constantly evolving
 - Lacking a single "correct" solution
- Climate change
 - Poverty
 - Social inequality

Characteristics:

- Multiple causes
- Multiple stakeholders
- Multiple possible interventions
- No final solution

Apple's Wicked Problems: activity

How can Apple redesign its products and supply chain to become more sustainable and ethical without losing its competitive advantage or making its products unaffordable?

- 1. Find evidence**
- 2. Analyse stakeholder conflict**
- 3. Use design thinking to:**
 - Empathise: Understand the needs of customers, supplier workers and environmental groups.
 - Define: Identify the core challenge and its underlying causes.
 - Ideate: Generate different solutions (such as repair programmes and more responsible sourcing.)
 - Prototype: Develop a proposal for a more sustainable supply chain.
 - Test: Evaluate its environmental impact, cost, customer acceptance and feasibility.

Changemaker challenge

Challenge your own problem:

Identify a problem/opportunity
faced by an organisation of your
choice, then consider:

Evidence

- What evidence demonstrates that this problem exists?
- How reliable is that evidence?
- What evidence is missing?

People

- Who experiences the problem?
- Who influences it?
- Whose perspective have I not considered?

Assumptions

- What am I taking for granted?
- Which assumption would be most damaging if wrong?

Alternatives

- What else might explain this situation?
- Am I describing a cause or only a symptom?

Root-cause analysis

- 5 Whys or Fishbone

Reframing

- How might another stakeholder define the problem?
- What happens if I change the boundaries of the problem?

Any questions?



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