

Reverse-engineering II — the Introduction and the gap

Week 5 · 2105620 Research Communication Skills for Chemical Engineers

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TODAY

Three hours, and one sentence to leave with

12 min	What we need from the last two weeks — and nothing else
23 min	The Introduction as five moves
25 min	Activity 1 — label the moves
10 min	Debrief
10 min	Break
25 min	Absence is not a gap · claim strength
25 min	Activity 2 — your gap in three sentences
15 min	Debrief
10 min	Break
15 min	From gap to aim to Methods
10 min	Activity 3 · close

What we need from the last two weeks

Two ideas. One from the matrix, one from the recordings. If you missed either, you are not behind after the next ten minutes.

THE ONE THING THE MATRIX WAS FOR

From Week 3 — three shapes of gap

Two rows contradict

A column is empty for every row

Every row shares one condition

An unresolved question

Nobody has measured it

The field has tested only one regime

From Week 4 — an Introduction is five moves

1

Establishes

a context the reader already accepts

2

Narrows

once or twice, each time tighter

3

Reports

what is known — and then what is not

4

States the gap

— as a cost, not as an absence

5

States an aim

the Results can answer

The five moves

Now the same five moves, slowly, and where each one fails.

Move 1 — establish something they already accept

● **Good**

— a fact of the field nobody argues with. Emissions are large. Zinc is cheap. The reader nods and reads on

● **Bad**

— a claim you will have to defend. Now the reader is arguing before you have said what you did

● **Also bad**

— so general it belongs in any paper. “Energy storage is important” opens ten thousand papers a year

Move 2 — narrow, and mean it

Field → approach → the specific system you work on

- Once is often too fast. Four times is a review article
- Each narrowing must
something. If nothing is excluded, it is not a narrowing
- Narrowing twice to the same place is the commonest
structural fault in a draft Introduction

exclude

Move 3 — known, then not known

What is known

The state of the art, with numbers. What has been achieved, and by roughly what means

What is not known

Where that work stops. Not everything it fails to do — the *one* thing your paper is about

THE MOVE EVERYTHING TODAY IS ABOUT

Move 4 — the gap

An absence is a fact
about the literature.

A gap is a claim about what that absence costs us.

What the difference looks like

X Absence

Comparatively little work has been done on the degradation of blended amine solvents

✓ Cost

Because degradation rates for blended solvents are not reported under realistic flue-gas conditions, the operating cost of a retrofit cannot be estimated before it is built

Move 5 — an aim a result can answer

✗

to **understand** the mechanism of ____

✗

to **investigate** the behaviour of ____

✓

to **determine which** of four ____ sustains ____ at ____

✓

to **establish whether** ____ changes when ____

Label the moves

ACTIVITY 1

What to do

1

8 minutes alone.

Six paragraphs on the sheet. Write what each one *does* — ten words, verb first

2

7 minutes in pairs.

Compare. Where you disagree, decide which of you is right

3

Then the three questions

at the foot of the page

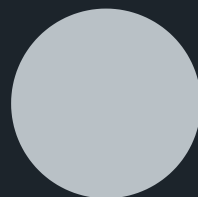
What you found

- 1 P2 and P5 do the same job.**
Both narrow to post-combustion amine scrubbing. The argument walks back up the funnel and down it again

- 2 P6 states an absence, not a gap.**
“Little work has been done” — on its own that is a fact about a search

- 3 The aim cannot be settled.**
“To better understand the degradation mechanisms” — name the measurement. There isn’t one

BREAK · BACK AT THE TIME ON THE BOARD



Absence is not a gap

The same three shapes from your matrix, turned into sentences a reviewer can act on.

Three shapes, three sentences

Two rows contradict	*Reports disagree on whether . <i>Under X the effect is</i> , whereas under Y ____*
A column is empty	No study to date reports ____ under ____ conditions
One shared condition	Existing work is confined to ; <i>behaviour under</i> remains uncharacterised

But that is still only half a gap

1

What is known

— it is established that ____

2

What is not known

— what has not been ____ is ____

3

What that costs us

— because of this, we cannot ____

How strong is your claim, exactly?

<i>is</i>	Measured directly, in this work
<i>indicates</i>	Measured, and the reading points one way
<i>is consistent with</i>	Not measured. Compatible with what was
<i>suggests</i>	Inference from someone else’s result
<i>may</i>	Speculation, and labelled as such

Your gap, in three sentences

ACTIVITY 2

What to do

- 1** **10 minutes alone.**
Three sentences on your own area. Known · not known · what it costs. No reading, no searching

- 2** **10 minutes in pairs.**
Swap sheets. Ask the two questions printed under the box

- 3** **5 minutes.**
Rewrite yours after your partner has finished with it

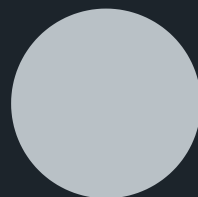
Sentence three, out loud

Read me sentence three only.

- The room decides:
 , or
 wearing longer words
- “Has not been systematically investigated” is an
 absence with a suit on
- If it names something we cannot do, predict, or explain
 — it is a gap, and it is yours

a cost
an absence

BREAK · BACK AT THE TIME ON THE BOARD



From gap to aim to Methods

The gap decides the aim. The aim decides what the Methods have to contain.

The chain

Gap → Aim → Method → Result

- The gap says what we cannot currently do
- The aim says what this paper will settle — in terms a measurement can close
- The method must contain something that produces that measurement
- The result must report it. Every aim, one answer

Operational definitions

Failure

At 80 % of initial capacity? At a short circuit? At a voltage threshold?

Efficiency

Averaged over all cycles, or measured at the end?

Stable

Over what duration, and within what band?

One aim sentence

Turn your gap into an aim a result could settle. Name the measurement.

Before Week 6

- **Keep this sheet.**
- **Assignment 1 and the Week 4 outline**
- **The evidence map**

Week 7 builds a manuscript blueprint and it starts from your three sentences and your aim

— if either is still outstanding, submit before Sunday. No penalty

— 10 to 15 sources, due before Week 7. Start it from the four rows you already have

BEFORE YOU GO • 45 SECONDS

How was today?

Five questions. Anonymous — no name, no email, no login.

The fourth question is the one I actually use.

The two most common answers open next week's session.

oxidized-challenge-ed9.notion.site



Scan now — I will wait