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The ART of Literature Studies and Reviews

An attempt to create order in chaos

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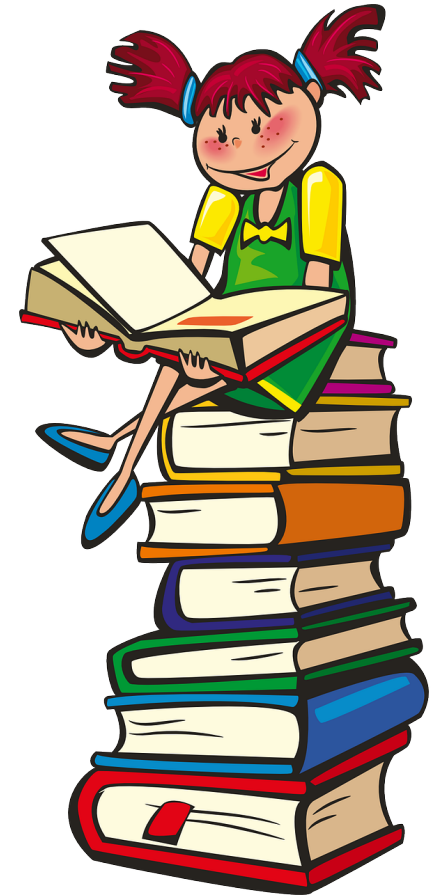# The ART of Literature Studies & Reviews

An attempt to create order in chaos

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Aerospace Structures & Materials

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Today's Programme

09.30 Introduction and creation of groups round table

09.40 Literature Study & Reviews: What are they? Why do they exist?

09.50 Introduction to Literature Strategies

10.10 Explanation of exercise?

10.20 In Groups: Suitable review type for chosen research questions

10.40 Feedback to plenary per group

10.55 Closing and Main Takeaways

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Why this workshop?

Literature Study Part of Research is often:

Cumbersome

Lonely with no end in sight

Confusing

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What I won't be talking about…

How and Where to Search for Literature…
That is a workshop in itself

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Phase 1:
Laying the foundations

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Literature Study vs. Literature Review

Engineering Style: Venn Diagram

Literature Study

Literature Review

Introduction / Background of Study

Research Outcome Justification

Theory / Methodology justification

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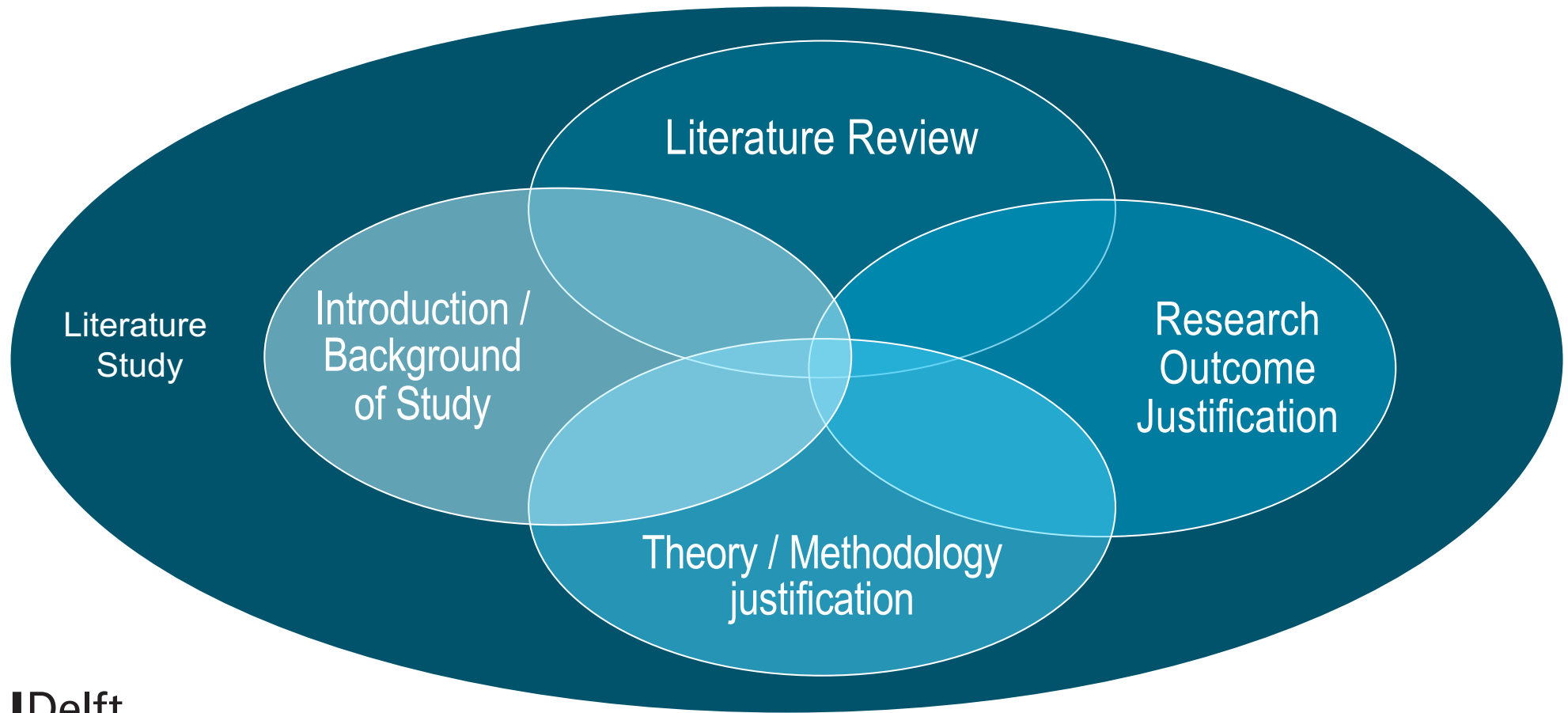
Background of Study

What does it do?

- Provides context for study

- Introduction to research problem

- Highlights why of the study

Where and how?

- Found in Introduction section

- Narrows down to topic

- Also non-scientific sources

- Is short and concise (1-2 p)

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Example phrasing:

It is widely reported (Diddly Squad, 2005) that PhD students are lonely. This shows that there is a real need for measures to combat loneliness

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Literature Review

What does it do?

- Critical analysis of existing literature

- Evaluates current state-of-the-art

- Identifies gaps in knowledge

Where and how?

- After introduction and research problem formulation

- Research question led

- Scientific literature only

- Lengthy and detailed (10 p or more)

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Example phrasing:

Sharon & Tracy et al. (2019) investigated the effect of XXX on YYY using research methods Alpha and Bravo. Their findings were that the answer is Charlie.

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Theory / Methodology Justification

What does it do?

- Explains where your chosen methods and theories come from

- Explains your research design& analysis choices

- Validation & Verification: Allows for **traceability** and **reproducibility** of your work

Where and how?

- In theory or methods section

- Scientific literature & textbooks

- References used as justification

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Example phrasing:

The questionnaire was field tested as recommended by Field and Hole (2003) ..

Research Outcome Justification

What does it do?

- Adds meaning and context to your findings

- Validation & Verification of your results

- Highlights what is special about your outcome

Where and how?

- In discussion of results section

- Scientific literature and textbooks

- Generally, no new literature introduced but links back to earlier references used

- Can be lengthy, depending on findings

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Example phrasing:

When computing Cronbach's alpha for our scale, using SPSS™ , a value of 0.85 was found. According to Field (2009), this indicates that the scale is reliable.

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Phase 2:
the building blocks

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Literature Review Types

Note: This is still a field of study in development

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14 Lit. Review Types

1. Critical Review
2. Literature /Narrative Review
3. Mapping Review / Systematic Map
4. Meta Analysis
5. Mixed Studies/ Methods Review
6. Overview
7. Qualitative Systematic Review/ Qualitative Evidence Synthesis
8. Rapid Review
9. Scoping Review
10. State-of-the Art Review
11. Systematic Review
12. Systematic Search & Review
13. Systemized Review
14. Umbrella Review
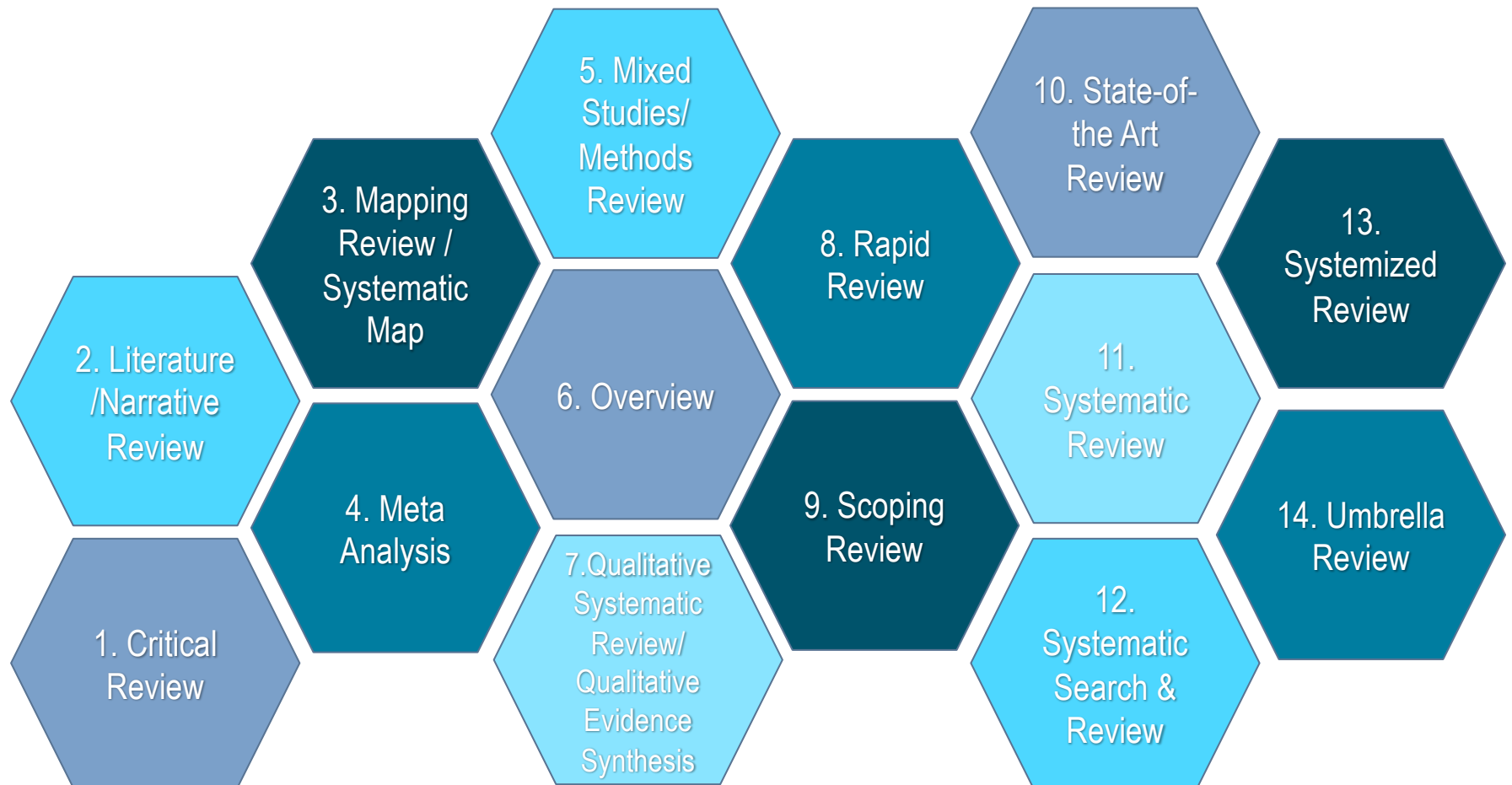
[Based on Grant &Booth, 2009]

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Approach Grant and Booth (see hand out)

- Using process of literary warrant to determine prevalent terminology

- All found review types were identified and mapped against SALSA Framework:

  - SEARCH

  - APPRAISAL

  - SYNTHESIS

  - ANALYSIS

- Characteristics described

- Perceived strength & weaknesses outlined

- Illustrated each by a relevant example from the field of health

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Phase 3:
Making choices using the SALSA framework

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SEARCH

Is about the method used to search for literature:

- Non-Systematic, Comprehensive, Exhaustive (search criteria do not have to be reported) – 1, 2, 6, 7
  - Historic Time Constraint (only looking at a certain timespan) – 10

- Systematic (Search criteria defined) – 4, 5,11, 12, 14
  - Delivery Time Constraint (final product must be delivered within a timespan) – 3, 8
  - Scoped (limited to certain areas/topics/time periods) – 3, 9

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APPRAISAL

Decision on what to include

- No Formal Quality Assessment – 1, 2, 3, 6, 9, 10, 12, 13

    (inclusion is up to the researcher, no formal criteria)

- Formal Quality Assessment – 2, 4, 6, 7, 8, 11, 12, 13, 14

    (such as inclusion/exclusion criteria and/or sensitivity analyses, may be time-limited)

SYNTHESIS

Presenting of findings

- Narrative (e.g. conceptual, chronological, qualitative) – 1, 2, 6, 7, 10

- Tabular with narrative - 5, 6, 8
    - Little narrative – 9, 12
    - Tabular accompaniment – 10, 11, 13

- Tabular and Graphical (e.g. mapping) with narrative – 3, 4, 5, 14

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ANALYSIS

How is it analyzed?

- Chronological, conceptual, thematic – 1, 2, 4, 6, 7, 10, 11, 12, 13, 14

- Quantity & quality of literature/evidence – 3, 8, 9

- Numerically – 4, 5

To what purpose?

- Derive new model/theory or hypothesis – 1, 7

- Identify need for primary and secondary research - 3

- Identify previous accomplishments - 2, 4, 5, 8, 10, 11, 12, 13, 14

- Identify gaps, omissions and limitations - 2, 3, 5, 8, 10, 11, 12, 13, 14

- Specify a viable review - 9

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Assignment:

In groups use the **SALSA** framework to design a literature review

1. Choose your research question

2. Select your **SALSA** methods

3. If time allows, check what type of review it is from hand out

You have 20 minutes

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Report Back

Which SALSA options did you choose & why?

Which of the review methods as listed by Booth & Grant (2009) would best fit?

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Main Takeaways & Further Research

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Main Takeaways

What will you take home from this?

What would did you miss?

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Do these 14 types also exist in engineering & education research?

Or are there more or less?

Anyone interested in collaborating to create an overview as in Booth & Grant (2009) specifically for engineering education?

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