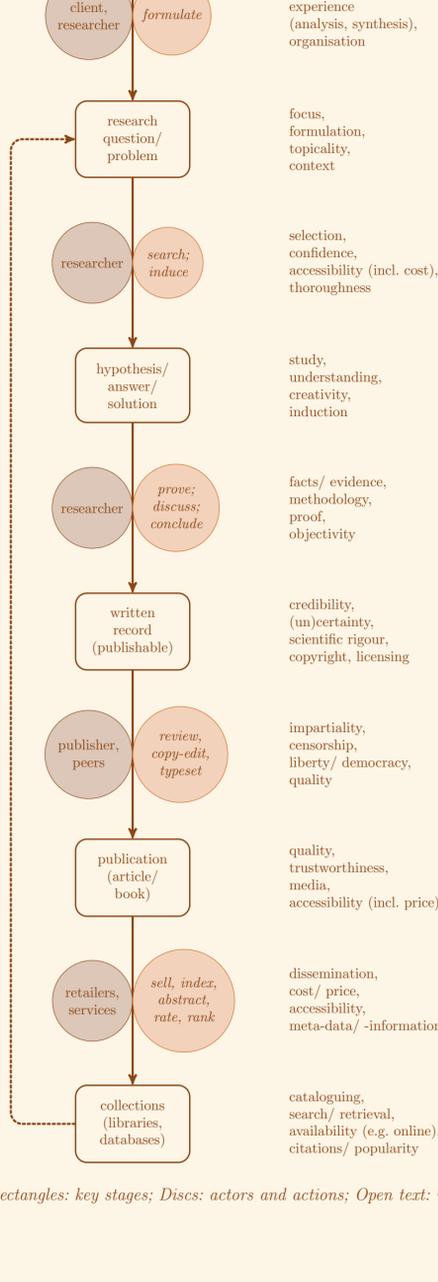


Note

Scientific research is a systematic and responsible operation of investigating, consulting, and enquiring into records (e.g. publications, project logs, databases) in order to establish trustworthy knowledge. Research workflows reveal both abstract and concrete issues (§ 1), with the former ones being subjects of Systems PlanningSM's own *R&D style* (§ 3) and the latter ones being resolved in praxis (§ 4) — for instance, regarding the *reliability of the sources* (§ 4.1), the *method of work* (§ 4.2), and the *communication* (§ 4.3) of the new knowledge.

1 Workflow

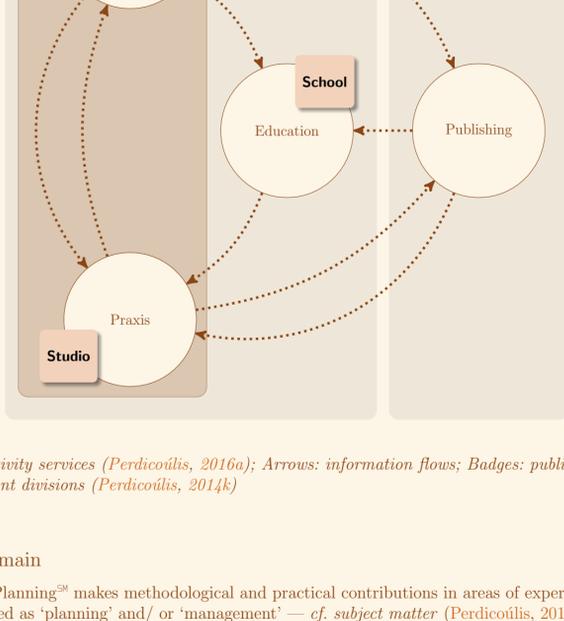


Rectangles: key stages; Discs: actors and actions; Open text: issues

2 Expertise

2.1 ThoroughTM R&D

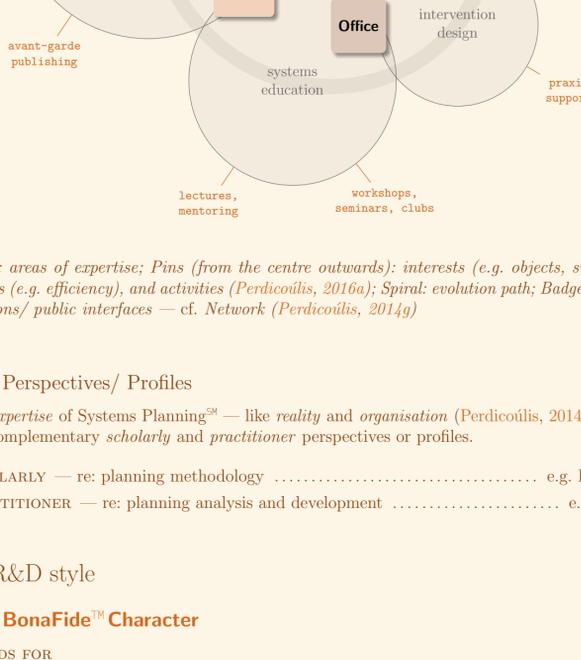
The expertise of Systems PlanningSM (§ 2.2) is powered by thoroughTM *research and development* (R&D) — i.e. involving both innovation and praxis, corroborated by education and publishing.



Discs: activity services (Perdicoulis, 2016a); Arrows: information flows; Badges: public interfaces/development divisions (Perdicoulis, 2014k)

2.2 Domain

Systems PlanningSM makes methodological and practical contributions in areas of expertise that can be classified as 'planning' and/ or 'management' — cf. *subject matter* (Perdicoulis, 2014h).



Discs: areas of expertise; Pins (from the centre outwards): interests (e.g. objects, subject matter), intents (e.g. efficiency), and activities (Perdicoulis, 2016a); Spiral: evolution path; Badges: development divisions/ public interfaces — cf. Network (Perdicoulis, 2014g)

2.3 Perspectives/ Profiles

The *expertise* of Systems PlanningSM — like *reality* and *organisation* (Perdicoulis, 2014k) — comes in two complementary *scholarly* and *practitioner* perspectives or profiles.

SCHOLARLY — re: planning methodology e.g. R&D, teaching
PRACTITIONER — re: planning analysis and development e.g. applications

3 R&D style

3.1 BonaFideTM Character

- STANDS FOR
Enquiry^a — e.g. knowledge, understanding
Ethical means — e.g. ethical publishers^b, ethical sponsors^c
OPPOSES
Demeaning institutional pressures^d, whether conscious or not
Delusive popularity indices^e dictated as proxies of excellence

^a e.g. curiosity, critical spirit — cf. **Youthful Minds**SM (Perdicoulis, 2016a)
^b e.g. consolidating knowledge; non-predatory, non-avaricious — cf. publishing style (Perdicoulis, 2014f)
^c e.g. advancing the community, society, and the environment; no bureaucrats, no 'image washing'
^d e.g. 'publish with this company', 'funding available only for these subjects', 'productivity'
^e e.g. 'impact factor', indexing, ranking

3.2 RigorousTM Conduct

- STANDS FOR
Methodic preparation^a — e.g. study, investigation, understanding
Meticulous execution^b — e.g. protocol, techniques, resources, records
Shared and resolute reasoning^c — e.g. agreements, decisions
Painstaking communication^d — e.g. writing, illustrations
OPPOSES
Unscrupulous authoring^e — e.g. for the obtention of 'career points'
Ill-advised attitudes^f hampering decision-making or course corrections

^a cf. **Visual Argument**TM, **Big Understanding**TM (Perdicoulis, 2016a)
^b cf. operating principles (Perdicoulis, 2016a), scientific rigour (Perdicoulis, 2014e)
^c cf. **Explicit Planning**TM (Perdicoulis, 2014d)
^d cf. **Sound Exchange**TM (Perdicoulis, 2016a)
^e e.g. plagiarism, 'ghostwriting', obtaining articles in the 'black market', covert replication
^f e.g. 'this is far from perfect, but we did not have time for better' (pity/ excuse); 'we know what is right, but we are committed to doing otherwise' (cognitive dissonance/ stubbornness); 'there is not much to be done' (inertia/ laziness)

3.3 EsteemedTM Outcome

- STANDS FOR
Applications to assay knowledge^a — e.g. hypotheses — e.g. success, corrections
Feedback from the applications — e.g. success, corrections
Selective dissemination — e.g. publications, consulting
OPPOSES
Conjectural^b knowledge — e.g. due to insufficient time, inappropriate method, or limited care
Low-quality publications^c — e.g. by carelessness, for vanity^d, or for career purposes^e

^a cf. Seeking proof (Perdicoulis, 2013g)
^b e.g. unproven, formed on incomplete information and/ or by ill processing
^c a.k.a. 'filler' or 'fake' articles
^d e.g. to feel proud for having one or more publications to their name
^e e.g. using the number of publications as a criterion for remuneration

4 Praxis questions

4.1 Sources

- How do you identify your sources (e.g. publications, people)?
- How do you know you have looked everywhere? (Perdicoulis, 2018b)
- How do you know the your chosen sources? (Perdicoulis, 2015b)
- How do you judge the reliability of your sources?
- Are you likely to trust a source by its identity (e.g. name, authority)?
- Would you consider an 'authority' source known to be biased?
- Will you be handling mostly data, information, understanding, or knowledge? (Perdicoulis, 2014h)
- Do you consider people's experience as a source?
- Are you considering media such as open access articles, videos, interviews, and blogs?
- How trustworthy are these, and how do you demonstrate it?
- How would you reference and cite such sources? (Perdicoulis, 2014i)
- Can you be your own source of information?

CAUTION
Content — The transmission of *knowledge*^a *per se* relies on reader experience^b. The ideal content of scholarly publications (mainly articles and books) is *explanations* that yield *understanding* (e.g. processes, causal mechanisms), which demands curiosity and hard work. *Data* (i.e. facts/ objective reality) and *information* (i.e. interpretation/ meaning) are 'raw' sources with limited intrinsic value for the advancement of science (Perdicoulis, 2014h).

Consultation — The mainstream scholarly (or 'scientific') publications extend to all fields of human knowledge, are usually produced and distributed by commercial publishers, and are abstracted, indexed, and/ or ranked for various purposes by affiliated or independent companies. Regardless of publisher repute, indexing, or classification, all publications (e.g. articles, books) should be consulted with a critical spirit (Perdicoulis, 2013a).

Appropriateness — Demeaning pressures and delusive attractions in scholarly R&D (§ 3) are likely to result in inferior quality publications (e.g. 'filler' articles) and conjectural knowledge (e.g. hasty or generic conclusions), both of which are unsuitable for further research. It is the duty of the researcher to identify and exclude the inappropriate publications, and the duty of the editors and publishers to not let this happen in the first place (Perdicoulis, 2015b).

Aggregation — In the recent past, *libraries* were the important aggregators^c of scholarly publications (e.g. periodicals, books), valued for their physical collections. Modern scholarly publications are aggregated in *online* distribution networks created by the publishers and/ or indexing companies. Commercial ventures are centralised and thus become more visible and/ or popular, while independent publishers (e.g. departments, schools) generally adopt a more modest standing.

^a Implies (i) *familiarisation* with the subject matter and (ii) appropriate *understanding* (Perdicoulis, 2013b)
^b i.e. the preparation level (e.g. study, living experience, maturity) to receive the knowledge constructively
^c v. 'server-side' responsibilities of research (Perdicoulis, 2014f)

4.2 Method

- Is your research seeking to formulate or test a hypothesis? (Perdicoulis, 2014e)
- How do you intend to conceive ideas or induce hypotheses?
- What is your 'scientific' question? (Perdicoulis, 2013f)
- How many parts does your scientific question have? (Perdicoulis, 2017)
- What is the scientific field or discipline of your work? (Perdicoulis, 2014e, 2018c)
- What are the research traditions in that field or discipline? (Perdicoulis, 2014j)
- Are you distinguishing properly between objective and subjective information?
- Are you providing appropriate references for value judgements?
- What is your (main) argument?
- How do you support your argument? (e.g. evidence, proof, demonstration, experiment)
- Is your argument convincing?
- How do you seek proof? (Perdicoulis, 2013g)
- What kind of proof are you using? (e.g. scientific, mathematical)
- Is your experiment replicable? (if applicable)
- Are you replicating other people's experiments, just to make sure?

4.3 Communication

- Do you have any specifications regarding structure, content, and/ or format? (Perdicoulis, 2016b)
- How can you tell that an expression is accurate, or 'to the point'? (Perdicoulis, 2013a)
- Idem* for precision, or quality of information.
- How can you practice to improve the quality of transmitted information?
- Are you identifying your sources in a reference list?
- Are you citing your sources in the text?
- Which bibliography system are you adopting? (Perdicoulis, 2014i)
- Where will you publish?
- How did you decide where to publish?
- What is more important: the right readership or high journal ranking?
- Which medium has more 'impact' than the 'high impact journals'?
- Are you reaching inter-disciplinary audiences?
- Are you considering a professional manager to disseminate your research?

Bibliography

Perdicoulis, A. (2018c) *Domains*. Perdicoulis Publishing: Folio Division, Technical Collection.
Perdicoulis, A. (2018b) The search for scientific information. *oestros*, **29**
Perdicoulis, A. (2018a) The public science paradox. *oestros*, **26**
Perdicoulis, A. (2017) *Problems*. Perdicoulis Publishing: Folio Division, Technical Collection.
Perdicoulis, A. (2016b) *Documents*. Perdicoulis Publishing: Folio Division, Technical Collection.
Perdicoulis, A. (2016a) *Office*. Perdicoulis Publishing: Folio Division, Technical Collection.
Perdicoulis, A. (2015b) Scientific credibility. *oestros*, **21**
Perdicoulis, A. (2015a) The science marketplace. *oestros*, **19**
Perdicoulis, A. (2014k) *Charter*. Perdicoulis Publishing: Folio Division, Technical Collection.
Perdicoulis, A. (2014j) *Heritage*. Perdicoulis Publishing: Folio Division, Technical Collection.
Perdicoulis, A. (2014i) *References*. Perdicoulis Publishing: Folio Division, Technical Collection.
Perdicoulis, A. (2014h) *Niche*. Perdicoulis Publishing: Folio Division, Technical Collection.
Perdicoulis, A. (2014g) *Network*. Perdicoulis Publishing: Folio Division, Technical Collection.
Perdicoulis, A. (2014f) *Publishing*. Perdicoulis Publishing: Folio Division, Technical Collection.
Perdicoulis, A. (2014e) *Science*. Perdicoulis Publishing: Folio Division, Technical Collection.
Perdicoulis, A. (2014d) *Vision*. Perdicoulis Publishing: Folio Division, Technical Collection.
Perdicoulis, A. (2014c) Curators of scientific publications. *oestros*, **18**
Perdicoulis, A. (2014b) Sharing the science. *oestros*, **16**
Perdicoulis, A. (2014a) Information pairing. *oestros*, **15**
Perdicoulis, A. (2013g) Seeking proof. *oestros*, **14**
Perdicoulis, A. (2013f) Research questions. *oestros*, **13**
Perdicoulis, A. (2013e) The scientific qualifier. *oestros*, **11**
Perdicoulis, A. (2013d) On quality. *oestros*, **10**
Perdicoulis, A. (2013c) Shadow measurements. *oestros*, **9**
Perdicoulis, A. (2013b) People know. *oestros*, **8**
Perdicoulis, A. (2013a) Educated readership. *oestros*, **7**
Perdicoulis, A. (2012) Scientific writing. *oestros*, **5**