

Responsible Conduct of research : What does this mean?



Science Communication Between norms and practices

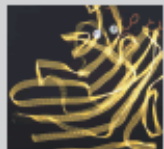
Or

« Show me what you write, I will tell you
what kind of researcher you are »





A crisis of confidence in the profession of researcher?



«..the professions are in the midst of a crisis of confidence and legitimacy. In public outcry, in social criticism, and in the complaints of the professionals themselves, the longstanding professional claim to a monopoly of knowledge and social control is challenged- first because professionals do not live up to the values and norms they espouse, and second, because they are ineffective. Professionals claim to contribute to social well-being, put their clients' needs ahead of their own, and hold themselves accountable to standards of competence and morality. But both popular and scholarly critics accuse the professions of serving themselves at the expense of their clients, ignoring their obligations to public service and failing to police themselves effectively.»

Donald SCHÖN, *the Reflective Practitioner*, 1983, p.11



I will explore the gap between the **norms** and **values** researchers have set themselves in the communication of their research, and their actual **practices**.
I will talk at all times about the **responsibility** of researchers.

Some background elements →



- Science is communication
- « Communicating *is* the doing of science »
(S.L Montgomery, the Chicago Manual)
- Communication of science is ORDINARY communication
- My PhD thesis (1995):
 - Main result: contradiction between the norms of good scientific writing and the written productions of researchers and their practices.
 - I raised the question of the **quality** of researchers' communication and of training practices



- An action-research project: Linguistics and Research Practices at INRA (the French National Institute for Agricultural Research) www.reflexives-lpr.org
 - Main hypothesis: Training for and through research can provide doctoral students with core competences expected from young professionals and autonomous and responsible citizens [core competences : critical thinking, vision, awareness of quality, problem-solving, integrity]
 - Strategy: to work within the scientific community [institutions, labs] and involve supervisors in the training process

« Science exists because scientists are writers and speakers.(...) As a form of knowledge, scientific understanding is inseparable from the written and spoken word. There are no boundaries, no walls between the doing of science and the communication of it,
communicating *is* the doing of science »

Scott L.Montgomery, *The Chicago Manual*, 2003



Norms

Standards: « How to write a scientific paper/an abstract »

ANSI

AFNOR

Vancouver 1976

Recommendations to authors

Journals

Conferences

Manuals etc

Good scientific practice

Funding Bodies

Institutions etc

Evaluation Criteria

Papers

Proposals etc

What do they say?

1. The **abstract** is a « self-contained » paragraph; it must be informative and must include the « five points »: rationale, objective, M&M, results and implications
2. The **introduction** must contain:
 - a clearly formulated problem
 - a relevant questionor hypothesis to be tested
It must be understandable to the non-specialist
3. The **discussion** must be focused
The authors must assess the significance of their research in the context of an explicitly enunciated hypothesis
4. The **scientific style** must avoid clutter
 - concise
 - precise
 - personal to avoid ambiguity
 - no jargon & no long clusters



What the Norms say

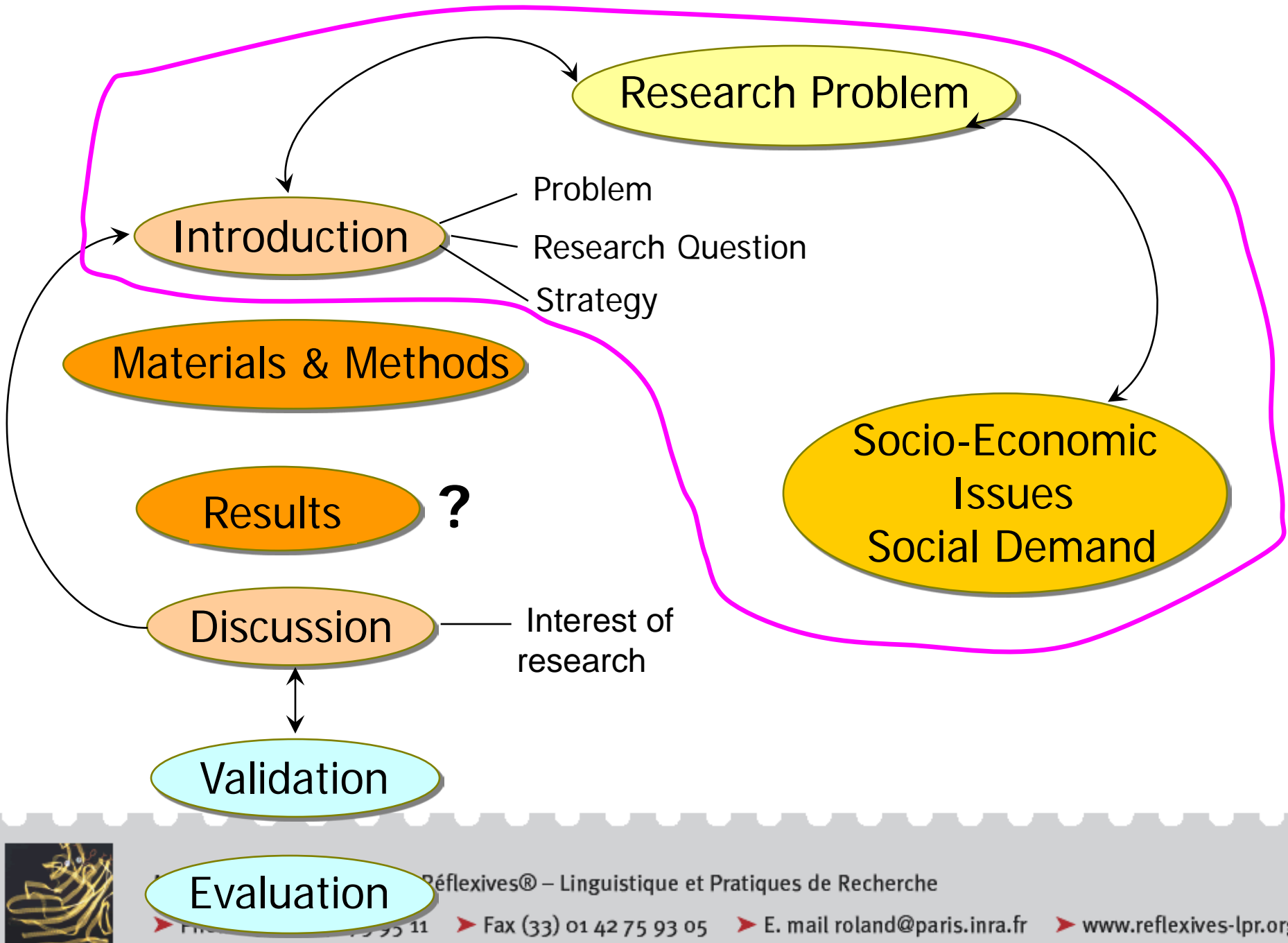
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QUALITY, INTEGRITY,
RESPONSIBILITY

What Practices reveal

1. Abstracts are descriptive rather than informative – rationale and objective often missing
2. Introductions are **weak**:
 - a catalogue of references
 - hypothesis or specific question missing
 - originality? novelty?
3. Discussions are « **rambling** »
 - too long
 - discussing results without a focus
 - weak comparisons
 - the authors haven't seen the interest of their work
4. Scientific style is **wordy** and **ambiguous**
 - « buzz »
 - passive & impersonal
 - jargon & clusters
 - plagiarism - FFP /QRP





Research definitions

"HANDLED WITH EXTREME CARE DURING THE EXPERIMENTS" Not dropped on the floor.

"TYPICAL RESULTS ARE SHOWN" The best results are shown.

"PRESUMABLY AT LONGER TIMES..." I didn't take time to find out.

"THESE RESULTS WILL BE REPORTED AT A LATER DATE" I might get around to it some time.

"THE MOST RELIABLE VALUES ARE THOSE OF JONES" He was a student of mine.

"IT IS BELIEVED THAT..." I think."IT IS GENERALLY BELIEVED THAT.."
A couple of other guys think so too.

" IT MIGHT BE ARGUED THAT ... " I have such a good answer for this objection that I shall raise it.



"IT IS CLEAR THAT MUCH ADDITIONAL WORK WILL BE REQUIRED BEFORE A COMPLETE UNDERSTANDING..." I don't understand it.

"CORRECT WITHIN AN ORDER OF MAGNITUDE.." Wrong

"IT IS HOPED THAT THIS WORK WILL STIMULATE FURTHER WORK IN THE FIELD"
This paper is not very good, but neither are any of the others on this miserable subject.

" THANKS ARE DUE TO JOE GLOTZ FOR ASSISTANCE WITH THE EXPERIMENTS AND TO SAM CRUD FOR VALUABLE DISCUSSIONS" Glotz did the work and Crud explained to me what it meant

The image of research and of the researcher is at stake!



The RESPONSIBLE author/writer is both REFLECTIVE and able to THINK CRITICALLY

- ✓ formulates the research problem, hypotheses and questions unambiguously
- ✓ takes ownership of his statements : use of the personal form in introduction and discussion to show originality, relevance and honesty
- ✓ cites his sources with accuracy
- ✓ expresses his viewpoint and assesses the significance of his research with clarity : avoids widespread use of « may/might » and « hedging » (= non commitment)
- ✓ doesn't believe he is objective just because he retreats behind his research object and results: avoids the passive, prefers the active form.



“What is scientific clarity? I believe that the key to scientific writing is clarity. Successful scientific experimentation is the result of a clear mind attacking a clearly stated problem and producing clearly stated conclusions. Ideally clarity should be a characteristic of any type of communication.”

Robert DAY, *How to write and publish a scientific paper*,
Cambridge University Press, 1991, Preface viii

Reasons to explain the present situation →



- Power struggle : Publish or perish !
- « ..whoever gets a chance to define what counts as a scientific problem also gets a powerful role in shaping the picture of the world that results from scientific research. »
Sandra HARDING, *Whose science? Whose knowledge?* 1991.
- A « system of error in perpetuity »?
Robert DAY, *How to write and publish a scientific paper*, Cambridge University Press, 1991, Preface viii
tacit knowledge, reproduction, mimetic behaviour
- Communication as an **add-on** in a researcher's training and activity



- Technoscience in the place of science? increasing role of techniques and technology / overspecialization and tool-oriented trend in research
- Myths in science: pretensions to neutrality, objectivity, truth, etc
 - « The Legend : a romantic philosophical conception of science – a method of guaranteed, unsassailable competence – a model solely designed for the personal use of geniuses » John ZIMAN, *Real Science, what it is and what it means*, Cambridge Univ. Press 2002

Present Challenges →



- Research training has been criticized for more than 20 years → Are institutions and supervisors ready to address the problem? Can they?
- The poor quality of researchers' communication threatens communication between researchers and their fellow citizens: if the sources are « polluted », how can trust with the public be maintained?
- Main challenge: researchers as responsible citizens
 - Science in Society
 - Education for Sustainable Development (UNESCO decade)
 - Production of knowledge no longer confined to the laboratories



Reflect about

- ✓ your approach to writing and communication: what kind of training have you received? How do you perceive your role as a researcher in communicating research?
- ✓ your own writing strategy and style
- ✓ what you can do to make things change





A few words about supervision and mentoring

Because supervisors and mentors have a responsibility

What the Norms say

Good mentors are..

- good listeners, open to communication, they do not judge or interpret
- good observers who anticipate problems
- good problem-solvers
- people with career experience willing to share their knowledge
- people who give emotional and moral encouragement

They seek to

- help the student optimize an educational experience
- ensure responsible scientific conduct
- help the student find suitable employment

They are role models

QUALITY, INTEGRITY,
RESPONSIBILITY

What Practices reveal

*Excerpts from « Bad Bosses » &
« Bad Mentors » - Discussion
forums on PostdocNet 2003*

<http://nextwave.sciencemag.org/pdn>

Some common patterns:

- « complete independence » = the advisor just doesn't seem to care about the project
- « total lack of initiative », « being at the mercy of PIs », the PI going as far as stealing the results
- failure to treat subordinates and junior colleagues with respect due to any human being
- utter lack of professionalism
- « pathetic and unacceptable practices » like career blackmail or terminating a promising science career, harassment or humiliation



Thank you for your attention!

For more info, please visit
www.reflexives-lpr.org

