

Communication in Computer Science

You and your PhD advisor

Olivier Danvy

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This was then, and this is now

- Then: school,
learning (“**a**pprendre”).
- Now: university,
understanding (“**c**omprendre”).

Understanding is better than learning

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I’ve spent the last 18 to 20 years unlearning the things I learned in my PhD studies.”

– Gilad Bracha (2011)

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Is Gilad talking about his PhD studies
or about his PhD advisor?

PhD studies: a transmogrification

From studying known things...

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From studying known things...

...to researching new things.

Fact: You will change

Your first research paper will mobilize
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PhD studies: a genuine mind expansion.

About this mind expansion

An expanded mind
is precisely what is expected
from someone with a PhD degree.

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- A researcher is more on his/her own than a student.
- New results are not presented like known ones.

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The issue is

- not to “show that you know” as in an exam;
- but to genuinely explain something new.

You will face open questions

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(cf. the “That is the question” slides)

Your overall goal

To move on with a PhD degree.

Your intermediate goal

To acquire your PhD degree.

Your likely milieu: a PhD school

The scientific analogue of

- a plant nursery, and
- a training ground for the Olympic Games.

On the one hand

Generically:

- Clear rules
(number of credit points, etc.).
- Clear milestones
(qual exam, stay abroad, etc.).

On the other hand

Specifically:

- Original work
(including peer-reviewed publications).
- Specialized supervision
(therein lies the rub).

Your thesis goes here

“And it is my thesis that ...”



Your thesis goes here

“And it is my thesis that ...”

(A parenthesis. Moving on.)



Your PhD advisor and you

- He is **shaping you** (positively or negatively).
- He will **manage your discontinuity**
from student to researcher.
- He will **follow your career.**

Example: shaping you

- He most likely suggested your PhD topic.
- You are part of his research team.
- You most likely owe him the PhD grant with which you pay your bills.

Example: managing the discontinuity

A natural transition point: **a stay abroad**
(e.g., an internship).

Example: managing the discontinuity

A natural transition point: **a stay abroad**
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Before the stay abroad: a **student**.

After the stay abroad: a **researcher**.

Example: following your career

- Reference letters.
- Career opportunities.

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And one day, you will outgrow him.

(C'est la vie.)

In general

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- There can be two PhD advisors.

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(But there is now room for more in the Mathematical Genealogy Project.)

In Europe

- PhD: license to **do** research;
- DSc: license to **direct** research.

Terminology

- PhD **advisor** (or **supervisor**) in English
- **Directeur** de thèse in French
- PhD **vejleder** in Danish
- Doktor**vater** in German

Varieties galore

- A variety of topics.
- A variety of students.
- A variety of advisors.

To say nothing of gender.

The variety of topics (1/2)

- foundational
- theoretical
- applied
- experimental
- developmental
- etc.

The variety of topics (2/2)

- Pre-determined or open-ended?
- If pre-determined:
the 80%/20% Google model?

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Are you only researching one thing?

The variety of students

- young / older
- local / national / international
- isolated / among others

The variety of advisors

- inexperienced / experienced
- local / national / international
- only expert / in a group of experts

A common point

One day,
maybe not so long ago,
your PhD advisor
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(“not so long ago” is a very subjective measure)

Communication

- How you may see your PhD advisor.
- How he may see you.

Communication

- How you may see your PhD advisor.
- How he may see you.

(What follows sounds like whining.

But it is **sincerely felt.**)

View from the PhD student (yin)

- Why does he not **listen to me**?
- Why does he not **support me**?
- Why does he not **help me**?

View from the PhD student (yang)

- Can't he just **tell me what to do?**
- What I do is **never good enough.**
- He expects **too much of me.**

View from the PhD student (yang)

- Can't he just **tell me what to do?**
- What I do is **never good enough.**
- He expects **too much of me.**
- **I would like to do more.**

More of the same (like, a lot)

- Piled Higher and Deeper
Jorge Cham
- Carnets de Thèse
Tiphaine Rivière
- etc.

View from the PhD advisor (yin)

- He never does what I want.
- What he does is nowhere near perfect, ever.
- He never takes an initiative.
- He is so slow and he stops too soon.

View from the PhD advisor (yang)

- I managed OK without supervision,
why can't he?

View from the PhD advisor (yang)

- I managed OK without supervision,
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(sigh)

Heard at a seminar for PhD advisors

“He only comes to see me at 16h00
when I have to leave to get my kid
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But a PhD student shouldn't be supernumerary
in the PhD advisor's calendar,
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But a PhD student shouldn't be supernumerary
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and he should never, ever, ever feel like that.
(And neither should the PhD advisor's kid.)

The responsibility of the PhD advisor

The PhD advisor needs to have
his students' best interests at heart.

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(He does for his kids.)

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The PhD advisor needs to have
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Not just his own.

The responsibility of the PhD advisor

The PhD advisor needs to have
his students' best interests at heart.

And his students **need to know that**
at a fundamental level.

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The PhD advisor needs to have
his students' best interests at heart.

And his students **need to know that**
at a fundamental level.

(Just like his kids.)

The responsibility of each PhD student

The PhD student needs to realize
that's it's **not** all about him
and **all** for him.

The essence of the problem

- **Egos get in the way** (“me, me, me”).

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- Ask not what the other can do for you.

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- Ask not what the other can do for you.
- Ask not what you can do for the other **either**.

Antoine de Saint-Exupéry in 'Citadel'

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Look in the same direction
and go do science.

Learn to know each other

Criteria:

- respect;
- esteem.

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Empathy helps too.

Empathy

Example:

The sight of a PhD advisor
attending a public talk
given by his PhD student.

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From ostensibly reading his e-mail...

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Example:

The sight of a PhD advisor
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given by his PhD student.

From ostensibly reading his e-mail...

...to taking notes busily.

Understand why he is WEIRD

Your PhD advisor is subjected to:

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Your PhD advisor is subjected to:

- management duties,

Understand why he is WEIRD

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- management duties,
- funding pressure,

Understand why he is WEIRD

Your PhD advisor is subjected to:

- management duties,
- funding pressure, and
- peer reviewing.

(Remember the slides on peer reviewing?)

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(Communion helps communication.)

Empathy test

- Can he be happy for you?
- Can you be happy for him?

So, you and your PhD advisor

- Learn to know each other.
- Learn to cooperate.
- Remember that in the end,
the message is more important
than the messenger(s).

Exercises

None.

Communication in Computer Science

You and your future PhD advisor

Olivier Danvy

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First of all

You need to be willing to

- expand your mind,
- mobilize all your resources, and
- do the intellectual equivalent of an Ironman
(a triathlon: principles, theory, and practice).

Get to know him beforehand

- Check out what he does.
- Read what he wrote.
- Consult his former PhD students:
they are his best ambassadors.

When you contact him

- Show you read what he wrote.
- Show you understand it.
- Show you appreciate it.

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Out of this initial display of **scientific respect**
his **scientific esteem** will come to be.

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From then on you can **look in the same direction.**