Who Are the Doctoral Students Who Drop Out?

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The « Research on PhD » project (RoPe)

Content:

- Administrative data (2005/2006-2013/2014)
- Qualitative interviews
- Longitudinal study (2013-2015)

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Researchers: V. Hospel, N. Roland, G. Boudrenghien, C. Devos, M. De Clercq, N. Van der Linden, R. Wollast.
Cohort analysis within a period of 8 years (2005-2006 to 2013-2014) of the two largest universities of the French-speaking Community of Belgium.

|                  | Frequency | Percent |
|------------------|-----------|---------|
| Success          | 820       | 54.3%   |
| Dropped out      | 572       | 37.9%   |
| Still active     | 117       | 7.8%    |
| Total            | 1509      | 100%    |
## Success rates as a function of factors (N = 1392)

| **Gender**          | Frequency | Success rate |
|---------------------|-----------|--------------|
| Male                | 779       | 60.6%        |
| Female              | 613       | 56.8%        |

| **Marital status**             | Frequency | Success rate |
|--------------------------------|-----------|--------------|
| Married                        | 376       | 67.3%        |
| Unmarried                      | 946       | 53.7%        |

| **Age**                        | Frequency | Success rate |
|--------------------------------|-----------|--------------|
| Lower than 26 years old        | 669       | 65.6%        |
| Between 26 and 40 years old    | 637       | 55.1%        |
| Higher than 40 years old       | 86        | 34.9%        |

| **Research field**             | Frequency | Success rate |
|--------------------------------|-----------|--------------|
| Sciences and technologies      | 555       | 68.6%        |
| Health sciences                 | 278       | 59.4%        |
| Social sciences                 | 362       | 49.4%        |
| Humanities                      | 197       | 48.2%        |

| **University**                 | Frequency | Success rate |
|--------------------------------|-----------|--------------|
| Same university                | 745       | 62%          |
| Different university           | 616       | 56%          |

| **Funding**                    | Frequency | Success rate |
|--------------------------------|-----------|--------------|
| Fellowship                     | 351       | 80.1%        |
| Assistantship                  | 170       | 67.6%        |
| Research grant                  | 308       | 64%          |
| No- or unknown funding          | 563       | 40.3%        |

| **Field**                      | Frequency | Success rate |
|--------------------------------|-----------|--------------|
| Same field                     | 1064      | 61%          |
| Different field                | 281       | 54.8%        |
R² = .21 (Cox & Snell), .28 (Nagelkerke). Model χ²(14) = 195.791, p < .001. Percentage of correct classification = 70.2%. Significant effects are presented in bold.

| Variables                                                                 | β    | P value |
|---------------------------------------------------------------------------|------|---------|
| Nationality (“Belgian nationals” versus “Non-EU nationals”)               | -0.28| 0.54    |
| Marital status                                                           | -1.47| 0.00    |
| Master grade (“high distinction” versus “satisfaction”)                   | -0.32| 0.53    |
| Master grade (“high distinction” versus “distinction”)                    | -0.22| 0.26    |
| Master grade (“high distinction” versus “very high distinction”)          | 0.92 | 0.00    |
| Change of university between undergraduate and doctoral degree            | -0.16| 0.48    |
| Age at registration (“less than 26 years old” versus “between 26 and 40 years old”) | 0.22 | 0.29    |
| Age at registration (“less than 26 years old” versus “strictly more than 40 years old”) | -0.80| 0.10    |
| Research field (“science and technology” versus “humanities”)            | -0.73| 0.00    |
| Research field (“sciences and technologies” versus “social sciences”)     | -0.20| 0.38    |
| Research field (“science and technology” versus “health sciences”)        | -0.08| 0.72    |
| Funding (“no-funding or unknown funding” versus “assistant lectureship”) | 1.09 | 0.00    |
| Funding (“no-funding or unknown funding” versus “non-university funding”) | 1.80 | 0.00    |
| Funding (“no-funding or unknown funding” versus “research project”)       | 0.78 | 0.00    |
| Constant                                                                 | 0.70 | 0.02    |
Risk factors accumulated

Factors: age at registration, nationality, research field, changing university, marital status and the funding.
Time course analysis

Number of PhD students who dropped out

- Fund from outside of university
- Assistant lectureship
- Research project (grant or contract)
- No-funding or unknown funding
To summarize

- Factors associated with the rate of doctoral degree completion:
  1. Marital status
  2. Field of research
  3. Funding
  4. Master grade

- Accumulation of risk factors leads to an increase in dropout rates

- Importance of time course analysis

- Interaction effects

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Qualitative Interviews - Doctoral Persistence (1)

- Supervisor
- Adjustment
- PhD student
- Moving forward
- Project that makes sense
- Emotional balance
- Success
Qualitative Interviews - Doctoral Persistence (2)

Supervisor

Adjustment

PhD student

Stagnate or turn around

No project or no sense

Emotional distress

Dropout
Influence of doctoral supervision on PhD students

Types of support from the supervisor
- Structure
- Autonomy
- Involvement

Emotional well-being
- Positive emotions
- Negative emotions

Doctoral persistence
- Intention to persist
### Population study ($N = 410$ men and $514$ women)

| Nationality                              | Men   | Women  | Age                               | Men   | Women  |
|------------------------------------------|-------|--------|-----------------------------------|-------|--------|
| Belgian nationals                        | 70%   | 73%    | Strictly lower than 26 years old  | 55%   | 58%    |
| Nationals from another EU country        | 16%   | 18%    | Between 26 and 40 years old      | 40%   | 38%    |
| Non-EU nationals                         | 14%   | 9%     | Strictly higher than 40 years old | 5%    | 4%     |

| Number of children                       |       |        |                                   |       |        |
|------------------------------------------|-------|--------|-----------------------------------|-------|--------|
| None                                     | 81%   | 77%    | 2 children                        | 6%    | 7%     |
| 0 but I am or my partner is pregnant     | 2%    | 2%     | 3 children                        | 2%    | 2%     |
| 1 child                                  | 7%    | 11%    | 4 children or more                | 2%    | 1%     |

| Master grade                             |       |        | Marital status                    |       |        |
|------------------------------------------|-------|--------|-----------------------------------|-------|--------|
| Very high distinction                    | 20%   | 24%    | Single                            | 42%   | 34%    |
| High distinction                         | 44%   | 51%    | Engaged in a committed relationship | 32%   | 34%    |
| Distinction                              | 31%   | 22%    | Married                           | 26%   | 31%    |
| Satisfactory                             | 5%    | 3%     | Widowed                           | 0%    | 1%     |

| Position                                 |       |        | Research field                    |       |        |
|------------------------------------------|-------|--------|-----------------------------------|-------|--------|
| Fellowship or research project (grant or contract) | 62%   | 64%    | Sciences and technologies         | 44%   | 24%    |
| Assistant lectureship                    | 25%   | 23%    | Health sciences                   | 19%   | 24%    |
| I have two types of funding (e.g., grant and assistant) | 2%   | 3%     | Social sciences                   | 28%   | 34%    |
| No-funding or unknown funding            | 11%   | 10%    | Human sciences                    | 8%    | 18%    |
| VARIABLES                                                                 | T1 | T2 | T3 | T4 |
|--------------------------------------------------------------------------|----|----|----|----|
| Sociodemographic characteristics                                        | X  | X  |    |    |
| Professional values/scientific norms                                    | X  |    |    |    |
| Motivation for doctoral studies                                         |    |    |    | X  |
| Perception of discrimination based on gender                            |    |    |    | X  |
| **Types of support (structure/autonomy/involvement)**                    |    |    |    |    |
| **Supervisor**                                                           | X  | X  | X  | X  |
| • Accompanying committee                                                 | X  | X  | X  |    |
| • Colleagues                                                             | X  | X  |    |    |
| • Relatives                                                              |    |    |    |    |
| **Work content**                                                         |    |    |    |    |
| • Value of the doctorate                                                 | X  | X  | X  | X  |
| • Workload                                                               | X  | X  | X  |    |
| • Satisfaction at work                                                   | X  | X  |    |    |
| **Working conditions**                                                   |    |    |    |    |
| • Funding                                                                | X  | X  | X  | X  |
| • Exhaustion                                                             | X  | X  | X  |    |
| • **Emotional well-being (positive and negative emotions)**              | X  | X  | X  |    |
| **PhD phases**                                                           |    |    |    |    |
| Adjustment and coping strategies                                         | X  | X  | X  |    |
| Perceived and collective discrimination                                  |    |    |    | X  |
| Motivational beliefs                                                     | X  | X  | X  | X  |
| **Intent to persist**                                                    | X  | X  | X  | X  |
## Types of supervisor support - Need Support scale

| Structure | Autonomy | Involvement |
|-----------|----------|-------------|
| My mentor defines clear objectives for me | My mentor encourages me to work in an independent way | My mentor shows that he/she respects me and values me |
| My mentor provides me with constructive feedback on my work | My mentor puts me under a lot of pressure (reversed item) | My mentor reassures me when I need it |
| My mentor gives me good advice on how I should plan and carry out my research | My mentor directs my work a lot, without really asking for my opinion (reversed item) | My mentor is concerned about me, not only as a researcher but also as an individual |
| My mentor discusses with me the difficulties I face and possible solutions | My mentor gives me little freedom in how I carry out my work (reversed item) | My mentor behaves warmly towards me when we discuss my research |

Responses were made on a Likert scale ranging from 1 (Totally disagree) to 5 (Totally agree).
Types of support ($N = 410$ men and $514$ women)

| Types of support | Women | Men  | Significativity   |
|------------------|-------|------|-------------------|
| Structure        | 3.57  | 3.61 | Non-significant   |
| Autonomy         | 4.09  | 4.07 | Non-significant   |
| Involvement      | 3.98  | 3.99 | Non-significant   |

From 1 (Totally disagree) to 5 (Totally agree)
## Emotional well-being for men and women

|                          | Women | Men  | Significativity |
|--------------------------|-------|------|-----------------|
| **When I'm working on my doctorate, I feel...** |       |      |                 |
| **Negative emotions**    |       |      |                 |
| Stressed/Anxious         | 62%   | 48%  | **              |
| Angry/Revolted           | 11%   | 12%  | Non-significant |
| Ridiculous/Ashamed       | 12%   | 12%  | Non-significant |
| Sad/Depressed            | 21%   | 15%  | *               |
| Discouraged/Demoralised  | 33%   | 18%  | **              |
| **Positive emotions**    |       |      |                 |
| Confident/Optimistic     | 36%   | 54%  | **              |
| Curious/Captivated       | 68%   | 73%  | Non-significant |
| Happy/Fulfilled          | 37%   | 51%  | **              |
| Satisfied/Contented      | 40%   | 49%  | **              |

*N = 410 men and 514 women*
Doctoral persistence

Intent to persist

| Statement                                                                 | Women | Men | Significativity |
|---------------------------------------------------------------------------|-------|-----|-----------------|
| No matter what happens, I intend to finish my PhD                          |       |     |                 |
| I am seriously considering quitting my PhD (Reversed)                      |       |     |                 |
| I plan on getting to the end of my thesis                                 |       |     |                 |
| If the current conditions of my PhD should continue, I am not sure whether I will finish it or not (Reversed) |       |     |                 |
| I have already thought of giving up on my PhD (Reversed)                  |       |     |                 |
| I am certain of having made the right decision by enrolling in a PhD program |       |     |                 |

From 1 (strongly disagree) to 5 (strongly agree).
## Interaction: gender of PhD Student X gender of supervisor

|                              | Male supervisor | Female supervisor | Effects                   |
|------------------------------|-----------------|-------------------|---------------------------|
|                              | Male PhD        | Female PhD        |                           |
| Involvement supervisor       | 3.97            | 3.95              | 4.06                      | 4.02                      | Non-significant |
| Structure supervisor         | 3.58            | 3.54              | 3.72                      | 3.63                      | Non-significant |
| Autonomy supervisor          | 4.06            | 4.09              | 4.13                      | 4.10                      | Non-significant |
| Support of colleagues        | 3.68            | 3.81              | 3.74                      | 3.80                      | Main effect of gender of PhD |
| Support of relatives         | 2.93            | 3.17              | 2.96                      | 3.11                      | Main effect of gender of PhD |
| Emotional well-being         | 3.61            | 3.45              | 3.73                      | 3.34                      | Main effect of gender of PhD |
| Intent to persist            | 4.17            | 4.03              | 4.24                      | 3.97                      | Main effect of gender of PhD |
Theoretical model for men and women

Estimations for men / women. CFI = .907, RMSEA = .040
Conclusions

Mean differences as a function of gender:

| Significativity | Positive emotions | Negative emotions | Doctoral persistence | Structure | Autonomy | Involvement |
|-----------------|-------------------|-------------------|----------------------|-----------|----------|-------------|
| V               | V                 | V                 | X                    | X         | X        | X           |

Theoretical model

1. Structure ➔ Fundamental dimension
2. Involvement ➔ Secondary dimension
3. Autonomy ➔ Emotional balance + Intent to persist (for women)
4. Emotional balance ➔ Doctoral persistence
References

Devos, C., Boudreghien, G., Van der Linden, N., Assaad, A., Frenay, M., Galand, B., & Klein, O. (2016). Doctoral students’ experiences leading to completion or attrition: a matter of sense, progress and distress. *European Journal of Psychology of Education*. https://doi.org/10.1007/s10212-016-0290-0

Devos, C., Boudreghien, G., Van der Linden, N., Frenay, M., Azzi, A., Galand, B., & Klein, O. (2016). Misfits between doctoral students and their supervisors: (How) Do they regulate? *International Journal of Doctoral Studies*, 11, 467-486. https://doi.org/10.28945/3621

Devos, C., Van der Linden, N., Boudreghien, G., Assaad, A., Frenay, M., Galand, B., & Klein, O. (2015). Doctoral supervision in the light of the three types of support promoted in self-determination theory. *International Journal of Doctoral Studies*, 10, 438-464. https://doi.org/10.28945/2308

Van der Linden, N., Devos, C., Boudreghien, G., Frenay, M., Galand, B., Assaad, A., & Klein, O. (2018). Gaining insight into doctoral persistence: Development and validation of Doctorate-related Need Support and Need Satisfaction short scales. *Learning and Individual Differences*, 65, 100–111. https://doi.org/10.1016/j.lindif.2018.03.008

Wollast, R., Aelenei, C., Galand, B., Azzi, A., Frenay, M., & Klein, O. (2020). *Mental Health of PhD Students Demands Urgent Attention: The Role of Supervisor Support on Emotional Well-being and Doctoral Persistence Intentions among Men and Women*. Manuscrit in preparation.

Wollast, R., Boudreghien, G., Van der Linden, N., Galand, B., Roland, N., Devos, C., de Clercq, M., Azzi, A., Klein, O. & Frenay, M., (2018). Who are the doctoral students who drop out? Factors associated with the rate of doctoral degree completion in universities. *International Journal of Higher Education*, 7(4), 143–156. https://doi.org/10.5430/ijhe.v7n4p143