COINS study tour

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Five research schools were selected to collect their experience with Ph.D. training. The selection comprised schools in the Netherlands and in Germany in different areas of research and with different forms of cooperation. All schools had been operating for several years, sometimes as far back as more than twenty years.

Topics that were discussed with representatives of all schools included the added value of a research school for Ph.D. training, specifics of a discipline related to Ph.D. training, cooperation with partners that compete for resources outside of the school, long-term strategic goals, and typical mistakes in starting and running a research school.

Observations

1. Everybody has some activities specialised to the discipline of the research school.
2. Cooperation across faculties or institutions is easier to achieve when there is money.
3. Cooperation across faculties or institutions is easier to achieve when there is not too much money.
4. Attracting good master students to a research school that may be developed into Ph.D. candidates is not uncommon.
5. Students seem to work hard even if they only get a certificate that has little formal value.
6. Many (institutions and students alike) use a research school as a brand to brush up their funding applications or CVs.
7. Successful research schools try to avoid too many rules and are rather inclusive than exclusive.

DISC Dutch Institute of Systems and Control

DISC started in 1987 with funding from a government programme for "Ph.D. networks". In 1995 the research school was established with startup funding of ca. 4 Ph.D. grants. Today DISC runs on a budget of 75,000 EUR p.a. paid for by TU Delft, that covers 3 days of secretarial work per week and 1 day dedicated time of the school's leader plus rent of a room. Additional funding comes in the form of membership fees.

KNAW is responsible for accreditation of research schools; accreditation is a "stamp" only, it does not provide funding by itself. KNAW wants DISC to ensure a high rate of completion in normalised time (4 years), but only member institutions of DISC have the power to control/enforce this. Of 200 Ph.D. students in the school ca. 80% complete.

The aim is to provide Ph.D. students a wider environment than 1:1 supervision. One of the first offerings of the network were Ph.D. courses in Utrecht (because Utrecht could be reached by train in max. 2 hours from all partner institutions). It was considered important to have physical co-location to stimulate research and interaction with other disciplines (DISC comprises engineering as well as mathematics). Courses are attended by 25-30 people (min. 10, max. 60). Ph.D. students are usually in

their first year of a four year programme and attendance is voluntary. Courses focus on scientific content and DISC leaves general courses to individual institutions. Local institutions issue a diploma for attendance of DISC courses. In addition, winter and summer schools are offered. If 27 ECTS worth of DISC courses have been attended, DISC issues a DISC certificate that has no formal value.

For a summer school, 3-4 top researchers are invited. DISC pays for travel, accommodation, and a moderate presentation fee (100 EUR/h). A winter school employs 1 lecturer for 3 days of intense training.

A special event are the "Benelux meetings". These are organised every other year in cooperation with a Belgian research school and assemble faculty and Ph.D. students in control systems, offer presentations of Ph.D. students and the opportunity to network and get to know each other in an informal environment. Feedback on presentations is collected by the audience by forms. There is a vote for the best presentations (out of ca. 100 presentations), leading to a DISC trophy that the member institution can keep for a year. There is a DISC award for the best M.Sc./Ph.D. thesis per year.

DISC focuses on activities that have value by bringing several partners together. It is considered important to include all potential partners, also smaller ones. There is a difference in contract and commitment between full and associative (small) partners, but this has little practical impact.

The school helps to make the national community more visible internationally.

There is not much geographical mobility when transferring from one academic level of study to the next. Recruiting of Ph.D. students hence happens mostly from own lower degree programmes or from abroad. DISC decided to post only links to member institutions with vacancies to avoid maintaining a central site.

RUB Ruhr University Bochum Research School (plus)

The RUB Research School was established ca. 6 years ago across disciplines, especially to provide general training and structures. All Ph.D. students are invited to become members (mandatory in some Ph.D. programmes).

The research school teaches general skills, supports internationalisation, communication of science, and preparation for further career also outside of academia. Specialised seminars and research methods are dealt with by faculties.

The research school created a platform and a group feeling for Ph.D. students across disciplines so that Ph.D. students do not only feel loyalty towards a discipline, but also to others with the same status. An annual "science college" event brings together students from different disciplines. Included in the science college is a "research day" where Ph.D. students present and give feedback to each other. Also "speed presenting" was tried. Students regularly came up with interdisciplinary projects after these events. Inception of new events often happens bottom-up, i.e. ideas are brought from students to the school office; this led to a workshop and discussion club to invite researchers. There is also a Doc-to-Doc programme to invite peers to the university.

A student who has completed 12 ECTS worth of courses gets a certificate by the research school in addition to the faculty diploma of the Ph.D. training programme the student is enrolled in.

Funding was drawn from the federal "excellence initiative" and paid for a pilot school from 2006-2012. Ca. 25% of all Ph.D. students were admitted in the pilot phase. With the transition from external to internal funding ownership among advisors has increased. Communication towards Ph.D. students was perceived to be easy.

"Research School plus" receives external funding (1.5m EUR p.a. for 5 years) especially for international stays, similar to the German academic exchange service. Ph.D. students can submit proposals for stays abroad, and the student community is included in the decision process. Proposals are peer-reviewed without anonymity. On average, 25% of proposals are funded.

B-IT Bonn-Aachen International Center for Information Technology

B-IT is a joint institute of the universities of Bonn and Aachen. Its governance is considered complicated, because the institute also includes a local university of applied sciences and a research institute as consortium partners and because the funding stems from a foundation as well as state contributions.

B-IT implemented one of the first master programmes with an international curriculum. In addition, a research school was established 5 years ago which will be evaluated this year. The research school brings together Ph.D. students in computer science from both institutions and especially leads master students to more research-intensive work. The research is currently focused on 8 areas and there are ideas to organise the research in larger terms, e.g. 3 areas: Software engineering/HCI, graphics/computation, and security/networks. Participation in the research school and its events is voluntary and students get a diploma supplement.

B-IT accumulated valuable knowledge in evaluating international candidates for master and Ph.D. programmes. Development of predictors involved tabulating institutions where candidates had obtained their previous degree, grades, and the grades admitted candidates later received in courses run by B-IT. Written tests have been found to be the best predictor for future success. A protocol for structured interviews is provided to faculty interviewing applicants.

Attending recruitment events in St. Petersburg was named as successful, albeit expensive. Bringing actual faculty members to these events was seen as attractive by candidates. Candidates tended to bring their parents and grandparents (because the grandparents would oversee investment decisions in the family). The master programmes have been running for ca. 10 years, and the current batch of Ph.D. students in the research area of the master programme (Bonn: life science informatics) was recruited completely from graduates of the own master programme.

Shaping a social environment for international students is regarded as a success factor for student retention and for marketing by alumni. Students from Bonn and Aachen do not often meet physically. Events are mostly related to research areas which are based in a single physical location. Up to two general assemblies are organised per year that last for a couple of days. Students give short presentations on their research topics, discuss results, and discover synergies for joint work. Events in a research area can be credited towards the course component of a training programme. Most of the joint events take place at B-IT in Bonn. For research school events (not including the master programmes) about half the events take place in Bonn, the other half in Aachen.

WONDER The Dutch Research School in Mathematics

WONDER started under the national research school scheme, similar to what Norway has been introducing recently. It received 200,000 EUR p.a. and underwent strict evaluations. Today, evaluations are still performed, but almost no money is dedicated by the government to operate the school. The school is organised as a foundation and as a project. It is accountable for finances. Accountability for academic performance is only assumed for evaluation. Every partner sends a representative to the board (12 in total). Today, the representatives are identical with the department heads to ensure that decisions can be made on the spot. There is one board meeting per year. The director of the school may spend up to 700 EUR per item/purchase on his own discretion without approval by the board.

WONDER facilitates education on a low budget and provides math content for Ph.D. graduate courses. Local graduate schools provide general skills training. In addition, MasterMath is a national MSc programme in mathematics that involves universities from all over the country. Students can apply for travel grants to attend courses. These national courses are organised as teaching in one area in a single location, e.g. "Wednesday is Geometry Day". Two teachers teach a national course as a team. Courses are recognised by all partners. The second year master courses are available to Ph.D. students.

WONDER offered a "master class" as a one-year master level programme in the past. It was directed at international students and intentionally difficult ("we tortured the students", sometimes homework would take a whole weekend). Out of 150 applications ca. 10 scholarships and some self-funded students as well as exceptional local students were selected, yielding a class size of 20. The master class served as a selection mechanism for good Ph.D. candidates (almost all who completed the master class continued with a Ph.D.). Only a certificate was awarded in the end, signed by the research school. Students paid for travel while housing and living was covered by a stipend of 8,000 EUR p.a. which was sufficient for the Netherlands. Candidates hailed mostly from Eastern Europe in the beginning, later from Latin America. The master class was discontinued when the school's funding subsided.

Ph.D. stipends are increasingly only available on external funding. It has become harder to match candidates to positions, because either there are no open positions or there are no candidates available at the right time. WONDER would have liked to attract more international master students, but this has become more difficult owing to legal obstacles and fees in the range of 15,000 EUR p.a. Sending teachers abroad to teach at other universities for a week proved successful in getting to know potential candidates better (and for candidates to get familiar with Dutch lecturers). The international office of the university assisted – after a first round of filtering – in evaluating language quality, visa issues, diplomas, and finances.

Ius Commune Research School

Ius Commune is a research school in law, assembling several law faculties in the Netherlands and also some international scholars (Belgium, Scotland, South Africa) with a total of 300 researchers (out of which 100 are Ph.D. students). It started with cooperation on teaching content. The selection of content is based on what has proved to be successful plus based on who wants to contribute. The secretarial staff running the school consists of two people.

The funding scheme requires national cooperation and depends on successful evaluation of the school; half of the evaluation relates to the Ph.D. training programme. Activities that can be funded are research programmes, training programmes, conference attendance, conference organisation, and invitation of visiting researchers. Ius Commune does not force every activity into the framework of funding and tries to avoid strict regulations. That there are regulations is considered progress compared to 20 years ago when there was no structured training and researchers would work individually and receive training on the job. Funding is guaranteed as long as the evaluation is positive. Is was stressed several times that evaluation must be and is taken seriously. Ius Commune organises an internal pre-evaluation by inviting international peers for review that lasts about 2-3 days.

Main activities include writing papers, presenting, teaching, and being taught. A large number of activities can be credited in the individual Ph.D. programmes of the participating institutions. It is under discretion of the Ph.D. training programme director how many hours can be credited per activity; alas, there exist lists that document the range of hours credited per activity in the past. Students are expected to receive 1,000 hours of training in their 4 year programmes, 600 hours specialised and 400 hours common/general training. Ius Commune issues diplomas documenting participation in activities of the school.

Ph.D. students in public law increasingly come from abroad, owing to tighter EU integration. Several times students stay in the Netherlands, e.g. as exchange students first, then later for a LL.M. degree before being admitted to a Ph.D. programme. Access to good candidates has also improved by having faculty teaching abroad. Admissions are taken seriously on board level.

Ph.D. students can continue to be members of Ius Commune after graduation as long as they are research-active. Otherwise they can become associated members to retain some visibility without performing research.