



UK collaboration in Singapore: institutional case study

**Imperial College London and the
A*STAR Agency for Science, Technology and Research, Singapore**

**Supervisory arrangements between a UK-based and off-campus
collaborative partner and support for research students through
the Transferable Skills Training Programme**

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Supervisory arrangements between a UK-based and off-campus collaborative partner and support for research students through the Transferable Skills Training Programme

1 The case study considers the Imperial College London (Imperial; the College) doctoral programme which is delivered with the A*STAR Agency for Science, Technology and Research (A*STAR). This research degree programme is managed jointly by Imperial College and A*STAR and leads to the award of an Imperial College PhD. A*STAR is a research division of the Singapore government and is the leading government agency for fostering world-class scientific research. It has a dual role in funding research and as a research provider. It actively nurtures public sector research and development in Biomedical Sciences, Physical Sciences and Engineering, and oversees 14 research institutes. Its work is strategically aligned to that of Imperial College.

2 A*STAR established a Graduate Academy in 2003 to encourage young Singaporeans to undertake PhDs and develop a career in research as well as gaining international experience. The A*STAR-Imperial Partnership (AIP) was established in June 2004 and was the first of its type at A*STAR. It developed out of existing well-established research collaboration between Imperial and A*STAR. The implementation agreement was signed in 2004, and amended in 2008 to reflect changes to the delivery of the programme. The implementation agreement is highly detailed, covering student selection, the appointment of supervisors and co-supervisors, financial arrangements, governance and supervision arrangements. The students and the supervisor visits are fully funded by A*STAR.

3 The AIP falls under the College's well-established Partner Research Institution (PRI) scheme. Imperial has detailed arrangements for the approval of such programmes. When this arrangement was established, the strategic decision to collaborate with A*STAR was taken by the Rector and Pro-Rector (International) and reported to Imperial's Senate, following lengthy discussions between staff at Imperial and A*STAR. The College's Guidelines for Establishing Collaborative Programmes require partnerships to be renewed every five years by the Strategic Education Committee (SEC). Subject to SEC's approval of the continuation of a partnership, the formal agreement is then reviewed and extended. This programme is due for renewal in 2013. Any changes to the current programme and model of delivery would have to be approved by the College's Graduate School.

4 This study also draws on the recruitment and admission of students, the student experience of the College's Transferable Skills Training Programme and the AIP supervisory arrangements, which are divided between supervisors at Imperial and co-supervisors at A*STAR.

Selection of the students

5 Students on the AIP are PhD students at Imperial, registered for an Imperial College award. They have been through a highly competitive selection process in order to obtain an A*STAR scholarship and have also fully satisfied Imperial's admission requirements for a research degree. The scholarship selection process at A*STAR involves an interview and presentation to a panel of researchers. Successful students are awarded a scholarship for the duration of their PhD. This covers travel and subsistence costs relating to the period spent overseas. Tuition fees are paid in full by A*STAR, and the programme also provides specific funds for both the Imperial and Singaporean supervisors to visit their students when they are away from them. Students are not able to join the AIP unless an

A*STAR scholarship is forthcoming. Once a scholarship has been awarded the student will discuss the most appropriate institution for PhD study with A*STAR, and will normally also undertake an internship at an A*STAR research institute prior to commencing their research degree. Some students will have undertaken an internship prior to selection; this depends on the research institute. Such internships are not part of the AIP. The award of a scholarship does not automatically result in a place on the programme at Imperial, as the College must also approve the student's research degree application.

6 Applicants must be Singaporean or intending to take up Singaporean citizenship. On applying to study on this research programme candidates must have identified a suitable supervisor at Imperial who is currently collaborating or has agreed to collaborate with an A*STAR researcher. The head of the research institute or a principal investigator at A*STAR will normally assist the student in identifying an appropriate supervisor at Imperial. The supervisor at A*STAR may have already worked with the student or have knowledge of their work and research interests. The PhD application will be discussed by the proposed supervisor and co-supervisor. Generally Imperial supervisors will have an established working relationship with the A*STAR research centre before accepting a PhD student for supervision.

7 Students are normally interviewed by Imperial as part of the selection process, either in person or by video conference. However, the audit team heard that, where the student's work is formerly known to the supervisor, an interview may be unnecessary. Candidates follow Imperial's normal application procedures. The AIP Officer at Imperial maintains a record of applications. The College takes around five new research students on the AIP each year and has no plans to increase these numbers.

8 The audit team was provided with information on the progress of each student towards completion and noted the successful progress and completion to date.

Management of the programme

9 The AIP has a programme director at both Imperial and A*STAR. At Imperial the Pro-Rector (International) acts as the programme director, while the Executive Director of the A*STAR Graduate Academy is the programme director at A*STAR. A joint Governing and Academic Board has been established to have oversight of the programme. The programme directors are responsible for the day-to-day operation of the programme and for preparing and presenting to the joint Governing and Academic Board an annual report outlining the activities and plans for the programme. The Board meets at least once a year and includes senior academic staff from both A*STAR and Imperial. The meetings alternate between Imperial and A*STAR. The Board's responsibilities include monitoring the benefits of the programme, approving supervisor and co-supervisor appointments and reviewing the status of any student who will not complete their PhD within 48 months.

Supervisory arrangements

10 As these students are registered as PhD students on Imperial College's doctoral programme, the lead supervisor is appointed from within the staff at Imperial College. The co-supervisor is a member of staff at A*STAR normally employed as a principal investigator who would be at least of reader status in the UK. Students divide their time between Imperial and their research institute in Singapore. Since 2008 students on the programme spend two years in each location, with a recommendation that students spend the first year at Imperial. The timings of the research placements at the College are flexible around the student and the supervisors, however, and are particularly planned around the research. The students are subject to the academic and examination regulations of Imperial

College. They are therefore required to attend the two Imperial Graduate Schools' Transferable Skills Training Programme.

11 Both the Imperial College supervisor and the co-supervisor are approved by Imperial and A*STAR through the joint Governing and Academic Board. At Imperial, inexperienced supervisors (those who have not had previous primary responsibility for the supervision of a successful student) must undertake a training course before taking on a lead supervisory role. Less experienced supervisors are also paired with experienced supervisors. All supervisors and co-supervisors receive guidelines on supervision. A*STAR maintains a pool of senior investigators approved to act as co-supervisors. In addition, all students have an academic mentor from outside the supervisory team, who provides additional advice and support to the student. The Imperial department in which the student is based appoints the mentor, and arrangements for making initial contact between the student and their mentor follow local departmental procedures. The engagement of mentors with the students appeared to be variable.

12 In 2010 Imperial revised its Academic Regulations so that research students could register directly for a PhD (students had previously registered initially for an MPhil, with transfer to PhD assessed no earlier than nine months, and normally no later than 15 months, after the date of initial registration). Under the revised regulations students must produce an initial plan of study within six to 12 weeks of registration; the study plan must be approved by at least one independent assessor. The first assessment of progress occurs at nine months and a decision is made regarding whether registration for the PhD can continue. A further progression meeting is held between 18-22 months, which checks on the completion of transferable skills training and, where appropriate, English language development as well as progress with the research.

13 Each AIP student and supervisor must also follow the local progression reporting arrangements of their Imperial department; this may include the production of a progress report at six-monthly intervals. All research students are also provided with regular opportunities to raise concerns in confidence, normally via the submission of a confidential report to the director of postgraduate studies and/or the postgraduate tutor in the Imperial department in which they are based - this report is not seen by either the supervisor or the co-supervisor. In addition, an AIP-specific review report is also completed annually by the Imperial supervisor, the co-supervisor and the student for consideration by the Governing and Academic Board. The students do not appear to receive any feedback on these reports from the Board.

14 While progress reports are completed in consultation with the A*STAR co-supervisor, the Imperial supervisor has responsibility to ensure that procedures are followed and the reports completed. Students the team met indicated that they were confused by the number of progress reports required, where they were considered and the actions taken.

15 As noted above, the AIP programme provides specific funding for both the Imperial and Singaporean supervisors to visit their students when they are away from them. Four funded visits are allowed during a student's course. These visits are recorded through the AIP Officer at Imperial. Generally supervisors, co-supervisors and students maintain contact through weekly scheduled telephone calls and emails. A*STAR staff visiting the UK will generally meet with all A*STAR students. Students stated that the standard of supervision was very good. They also welcomed the opportunity to study and research overseas and experience different research cultures, for example journal clubs which enabled students to present papers on 'hot' topics. The students also felt that the orientation and induction at Imperial was very good.

Transferable Skills Training

16 The Transferable Skills Training Programme (TSTP) was developed as a result of external funding from the UK Research Councils to support career development and transferable skills training for Research Council-funded PhD students.

17 Transferable skills training is provided through the two graduate schools at Imperial. All PhD students have to take a minimum of four 'A list' courses, or equivalent, as a condition of their progression. The 'A list' (core) courses are those which are considered to be the most essential for students within the first 18 months of their research programme. The core courses are supplemented by 'B list' courses, which are either of general interest or of a specialised nature. Students can choose to study more than the minimum requirement of courses, which many do. The programme is delivered throughout the year, with many of the more popular courses being repeated.

18 AIP students have access to the same portfolio of graduate schools' courses as Imperial College PhD students based solely in London. AIP students usually acquire the requisite credits by attending courses during their period of research in London. There is also a three-day residential Research Skills Development (RSD) course in the UK, which is equivalent to three A-list courses. The main purpose of the RSD course is to enhance both the personal and research effectiveness of participants through experiential learning. In 2008 a four-day version of the RSD course was introduced as a summer school in Singapore in collaboration with the National University of Singapore (NUS) and Nanyang Technological University (NTU). This now runs on an annual basis. The course involves both Imperial staff and local tutors from NUS and NTU. The participants are early-stage researchers from the three participating institutions. London-based Imperial College students may also choose to attend the summer school, which is highly intensive and equivalent to four A-list courses. Students participating in the Singapore RSD are also able to study additional transferable skills courses when studying at Imperial. The AIP students the team met reported that they found both the TSTP and the summer school highly useful, and not only beneficial to their studies but also to enhancing their career development. It was deemed to be an attractive feature of the PhD programme.

19 The audit team heard that the introduction of the summer school provided AIP students who had yet to attend Imperial with the opportunity to fulfil the graduate schools' requirements for transferable skills training. The introduction of the 2+2 AIP model also enabled students to undertake a wider range of options from the TSTP programme.

20 The transferable skills programme is evaluated by the academic training committees of the graduate schools using questionnaires to be completed at the end of each module. In addition, the College uses student focus groups to evaluate a wide range of activities, including skills training. Supervisors report on the quality and benefit of the training, evidenced by literature reviews and the increased maturity of the students' approach to independent research. The training is not assessed, but students can request that their attendance be recorded on their transcript.

21 A significant challenge faced by the College is the removal of external funding for the skills training, which has been supported by government funding to the Research Councils to provide additional career development and transferable skills training ('Roberts' payments). Various options are being considered, including an additional fee for the course.

22 The programme is subject to external review and the programme at Imperial was reviewed in April 2010 by the Research Careers and Diversity Group. The Group met with

postgraduate research students and reported that the students were highly positive about their experience of the skills training programme; it not only exceeded their expectations but made them feel that Imperial had invested in them. The group also reported that students felt that they had a real input into the development of the programme and had suggested new courses for the programme, which had been acted upon. Students also provided evidence of the positive impact of the programme. The Group also met with research supervisors who provided positive feedback on the main benefits of the programme. The commitment by the College to the skills training programme is found at the highest levels. It is supported by a dedicated team and is reviewed and evaluated regularly to ensure continuous improvement in meeting the needs of research students. There are no immediate plans for online delivery of the programme, as the evidence is that students prefer face-to-face delivery of this type of programme.

23 The collaborative PhD partnership between Imperial and A*STAR is highly prestigious and highly selective. The collaboration is founded upon a mutually aligned ethos of world-class research. It is supported by leading researchers in their field who act as supervisors and co-supervisors. The students are well supported but would benefit from additional information on the reporting requirements of the programme. The Transferable Skills Training Programme and the RSD are regarded externally as being highly desirable elements of the programme and are examples of the College being a sector leader in developing and supporting its PhD students. Although there is a question mark over the extent of future external funding for the TSTP, Imperial is fully committed to the continued delivery of this programme, as it not only provides essential support for the development and enhancement of its research students but is also felt to have a significant impact on the quality of the research output. The AIP programme also promotes further collaborative research between the two partners and enhances the interface between disciplines and research areas. A key factor in the success of the joint supervisions is the shared research interests of the supervisors.

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