



## International Collaboration in Graduate Education under the Umbrella of Dahlem Research School of Freie Universität

### A Programm for MINT-Teachers/ Teacher Students

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## The Freie Universität Berlin: A Learning Institution since its Beginning

- **1948 Cold War**      **Foundation of Freie Universität Berlin:  
International from the Very Beginning**
- **1968 Student Movement**      **Freedom Carries an Obligation:  
Democratization of University Structures**
- **1989 German Reunification**      **Young University - Rich Tradition,  
Aids to East and New Profiles within FUB**
- **1998 Economic Change in Berlin**      **Change Management for Innovation and  
High Performance**
- **2007 Excellence Competition**      **Winner in the Excellence Initiative as an  
International Network University**

**The Freie Universität Berlin:  
An Excellent Research & Teaching Institution  
The Dahlem Research School at a Glance**

The **Dahlem Research School (DRS)** was established as one of the three integral components of the institutional strategy of Freie Universität as an „**International Network University**“ - awarded by the **German Excellence Initiative**; other components of this initiative are: The **Center for Cluster Development (CCD)** and the **Center for International Cooperation (CIC)**

These three **Strategic Centers** are to offer an institutional framework to support and promote young researchers on an interdepartmental level and to strengthen the **international dimension of doctoral education and research** in general.

The **DRS** provides a comprehensive structure for distinguished doctoral programs at Freie Universität that **integrate international collaboration as a necessary and appreciated component of research studies in all areas and include international supervision and collaboration as integral part of all activities.**

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**The Freie Universität Berlin:  
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Dahlem Research School at a Glance**

The Mission of **Dahlem Research School (DRS)** is to:

- **Promote the development of innovative doctoral programs and to implement consistently quality standards and measures to be applied on a university-wide basis**
- **Provide additional funding opportunities to doctoral candidates within the context of its competitive Grants Program**
- **Offer complimentary training for transferable skills designed to enhance employability**
- **Maintain a Welcome Center intended as a one-stop-clearinghouse for doctoral students seeking information and advice on non-academic matters.**

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## **The Freie Universität Berlin: An Excellent Research & Teaching Institution**

### **Actual Doctoral Programs under the Umbrella of DRS:**

**Following major attractive and successful research fields of Freie Universität, the member doctoral programs within DRS mainly are in four research areas:**

- Area studies (North America, Latin America, East Europe, East Asia)
- Economics & Management, Social Sciences
- Humanities, Liberal Arts and Languages
- **Natural & Life Sciences**
- **Mathematics (Berlin Mathematical 'School: designed and governed by all three Berlin universities)**

**Joint supervision by a team, a supervision agreement and a curriculum comprising disciplinary, transdisciplinary and transferable knowledge provision for the professional development and also disciplinary, transdisciplinary and transferable skills to enhance intensity of monitoring progress & to meet the demands. Participation in research activities is warranted.**

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## **Innovative Programs as Work in Progress: Graduate Programs for MINT-Teachers under the umbrella of DRS**

**In 2009 the Freie Universität further succeeded in a Germany-wide competition for programs and projects to improve MINT-education in large, in particular to improve and enrich MINT-teacher education by guided participation in research activities.**

**One important component of this project aiming at improvement of MINT-teacher education is the designing, establishing and implementing of a Graduate Program for MINT-teachers/teacher students under the umbrella of the DRS:**

**The curriculum comprises MINT-specific disciplinary and educational knowledge provision for the professional development of teachers that include in-depth research experiences of MINT-subjects, but also in educational research on MINT-education, i.e. cognitive/psychological as well as social research, particularly integrating research on international classroom practices in large (see LPS-project).**

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**Ex.:The Learners' Perspective Study:  
Mathematics Classroom Practices in 15 Countries  
(<http://www.lps.iccr.edu.au>)**

Convinced that any improvement of mathematics classroom practice has also to be based on classroom practice research and to explore the views of teachers as well as of pupils, the **"Learners' Perspective Study"** started in 1999 by a joint collaboration and application for funding by mathematics educators from **Australia** (U Melbourne), **Germany** (FUB), **Japan** (U Tokyo) and **USA** (U San Diego)

One important base of the joint research activities are **videos from 15 consecutive lessons in 3 different 8-grade math classrooms of well-experienced and appreciated teachers in each country. Each lesson is followed by interviews with pupils and the teacher as interpreters of the video scenes and their respective views on the lesson taught as well as about their (different) perceptions, experiences and views about mathematics.**

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Until today, mathematics educators and their working groups from **China** (Shanghai and Hong Kong), **Czech Republic**, **Israel**, **New Zealand**, **Norway**, **Philippines**, **Portugal**, **Singapore**, **South Africa**, **Sweden**, **United Kingdom** have joint the project and provide data of their countries for analyses to all other LPS-colleagues.

Regular project meetings at yearly world conferences and workshops at the **International Center for Classroom Research** (ICCR at Melbourne University), an institution that is **accessible to and usable by all project members for processing their data and work collaboratively on analyses from various perspectives and create hot debates but also rich work for exchange and common publications**

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We have reached that

- leading math educators around the world created an still **increasing group of interested research students including active mathematics teachers**
- which all enjoy the opportunities of **international collaboration & exchange** on math teaching and classroom research issues, in particular discussions about their own teaching problems, special experiences **in analysing the rich material of classroom situations and teacher & pupils interviews** as well as presenting **their own research results on international conferences**
- Most of the larger participating universities have created a **doctoral program for ME** that also works with data from LPS!

**A model for the ambitious MINT-teacher Graduate Program  
at FUB!?!**

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**Lessons learnt:**

- **Doctoral programs that emerge from international collaboration are much richer in providing a variety of different and challenging research issues, new insight and also a more challenging variety of research perspectives and special themes** than those who only are restricted to national issues (and national classroom practices) only
- **International collaboration & exchange is a personal and an intellectual enrichment - so state our students**
- **Exchange of doctoral students are exciting experiences for those who supervise, compare and integrate! National doctoral programs for ME are now shaped by researchers from the collaborating countries who travel to partner colleagues at the various places.**
- **We are convinced that the planned MINT-graduate program is not only better manageable, but also further enriched by international experiences and common reflections about our long-term collaboration for graduate programs: International collaboration is a special excitement for teacher students in doctoral programs!**

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