



FACULTAD DE CIENCIAS Y EDUCACIÓN  
UNIVERSIDAD DISTRITAL

## TEACHER TRAINING IN THE AREAS OF SCIENCE AND MATHEMATICS

### UTEP College of Education

**Virtual Seminar**

**Universidad de Texas en El Paso**

*Adela Molina Andrade*

*Interinstitutional Ph.D. in education*

*Universidad Distrital*

**R.G. INTERCITEC**



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Hi!

- Universidad Nacional del Centro de la Provincia de Buenos Aires  
**(Argentina)**  
Cristina Iturralde M.S.  
Adriana Bertelle M.S.
- Universidad Federal de Rio de Janeiro – **(Brazil)**  
Laísa M. Freire, PhD  
Adjunct Professor
- Universidad Autónoma de Ciudad Juárez- Ciudad Juárez –  
Chihuahua **(México)**.  
María de los Ángeles Cruz Quiñonez, PhD.
- University of Texas at El Paso (UTEP)  
Ellen Esposito

Doctor William Medina for the invitation

**SEMINARIO VIRTUAL Universidad del Paso**



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## TEACHER TRAINING IN THE AREAS OF SCIENCE AND MATHEMATICS

### o Guiding questions

Which degree have the sciences and mathematics teachers? And which institutions train sciences and mathematics teachers to secondary education?

Which participation have the institution that we belong in the initial training and in service?

Which relations we consider exist between teaching and research?



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About the degree of the teachers:

- It's offered by the universities and supports the teachers actions in whole levels of training;
- In the case of the ancient Normal schools, that offered the degree of normalist teacher, acting in the level of basic primary, gradually the universities were generating programs to give professional degree.
- Later, in the decade of 90's the state created a politic law to normal school were validate by the universities, these situation day by day is losing field.



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About the teachers degree:

- In general to all specialities the degree is graduate (Licensed/Licenciado) and since the decade of 90's it's a career of five years as the other professionals.
- The titles are of three types: according to the specialities defined into the Law 115 (Physics, Spanish language...), educative level (Only childhood and primary) and another needs and options (Earth mother and Pshyco-pedagogy...)
- Children pedagogy (First childness level)  
Mathematics, Biology, Physics, Chemistry, Humanities and Spanish language, Languages, Arts education, Social Sciences, Natural Sciences and Environmental Education.



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Which participation have the institution that we belong to the initial training and in service?

- Offer training in undergraduate level (bachelor degree) and graduate (specializations, masters and doctoral degree).
- **Initial Training:** Children pedagogy, mathematics, Biology, Physics, Chemistry, Humanities and Spanish language, Foreign Languages with emphasis in English, Arts education and Social Sciences.



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## ADVANCED TRAINING

- **Specializations:** Human develop with emphasis in affective process and creativity; Technology education; Education and Environmental management; management of educative projects institutional and for childhood; culture and development.
- **Master Programs:** Communication and education; Education (Mathematical education, Natural Sciences and technology Education, intercultural communication, ethno-education and cultural diversity, ethics, politics and education); Technology Education; Education for peace, Childhood and culture; Linguistic applies to teaching English; and language pedagogy.
- **Ph.D. Program:** Interinstitutional in Education (Science Education, Mathematics Education, History of Education, Language and Education, and English teaching as foreign language).

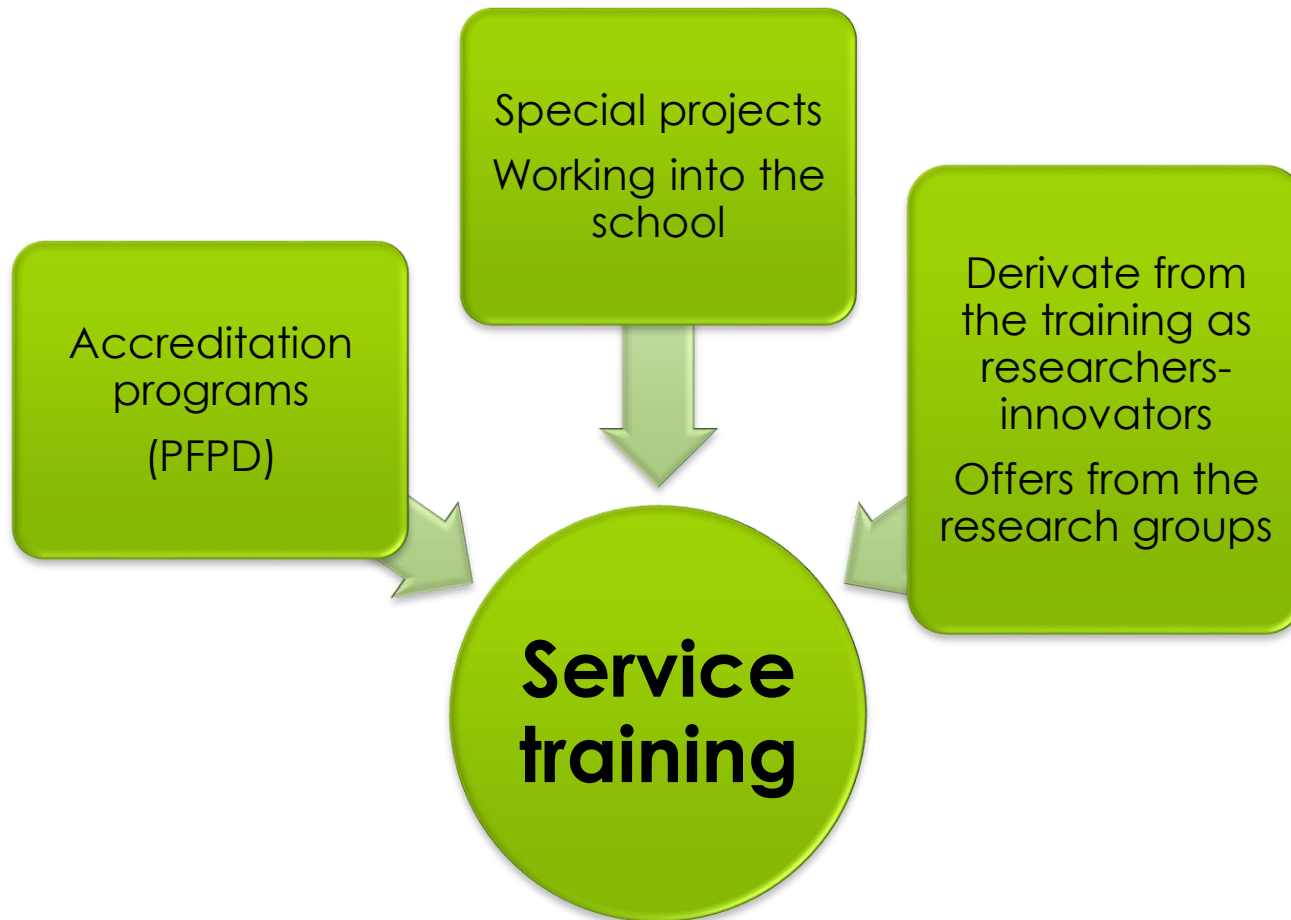


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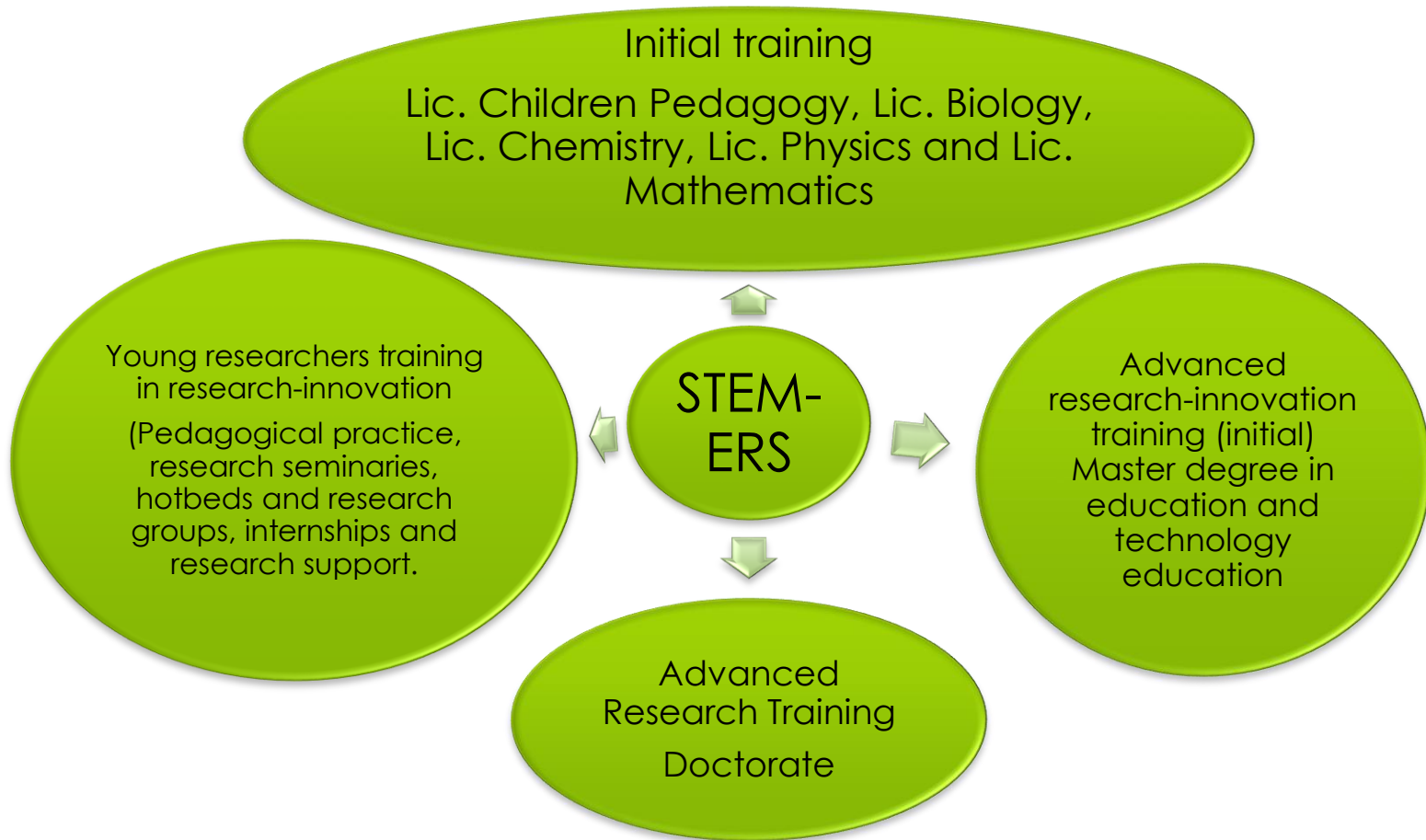


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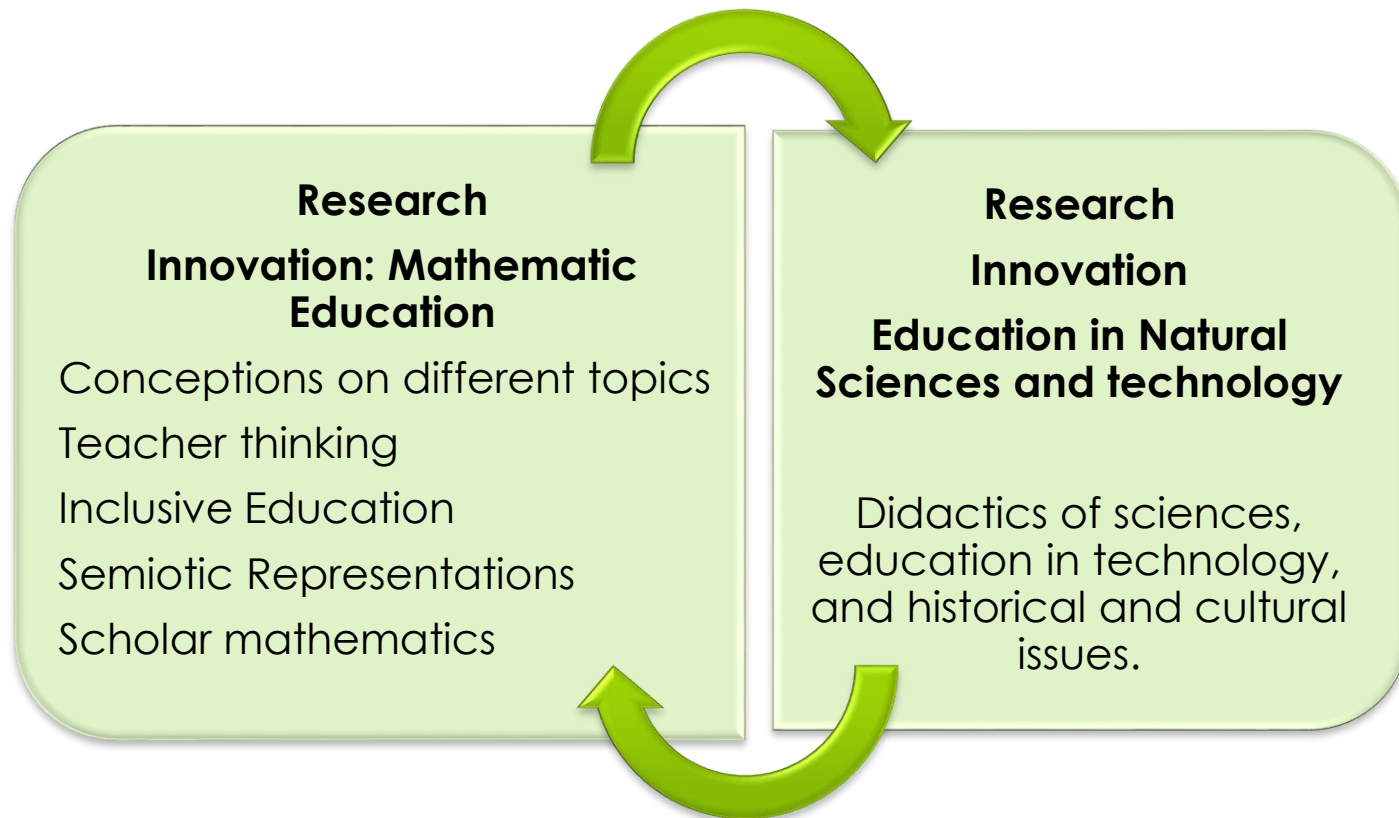


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# TEACHER TRAINING IN THE AREAS OF SCIENCE AND MATHEMATICS

## Sciences Education Research

Inclusion of environmental dimension into the science education

Didactical change and science teacher training

Relations between history and philosophy of science and didactic of science

Science teaching, Context and cultural diversity

Professional knowledge of science teachers and scholar knowledge

Science, Technology and Society: Social representations, citizen scientist training, social appropriation of science, and gender studies

## Mathematical Education

Language and mathematical didactics

Language and construction of mathematical knowledge

Language and mathematics argumentation

Development of early algebraic thinking

Influence of semiotics transformations into the cognitive constructions

Mathematics teacher training

Historical-critical and didactical analysis of funding elements of fundamental didactics

Technology and didactics of geometry



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Which relations we consider exist between  
teaching and research?

- Possibilities given to teachers and the roles they play in school?
- Definition of the profession?
- As and result of academic reasoning?

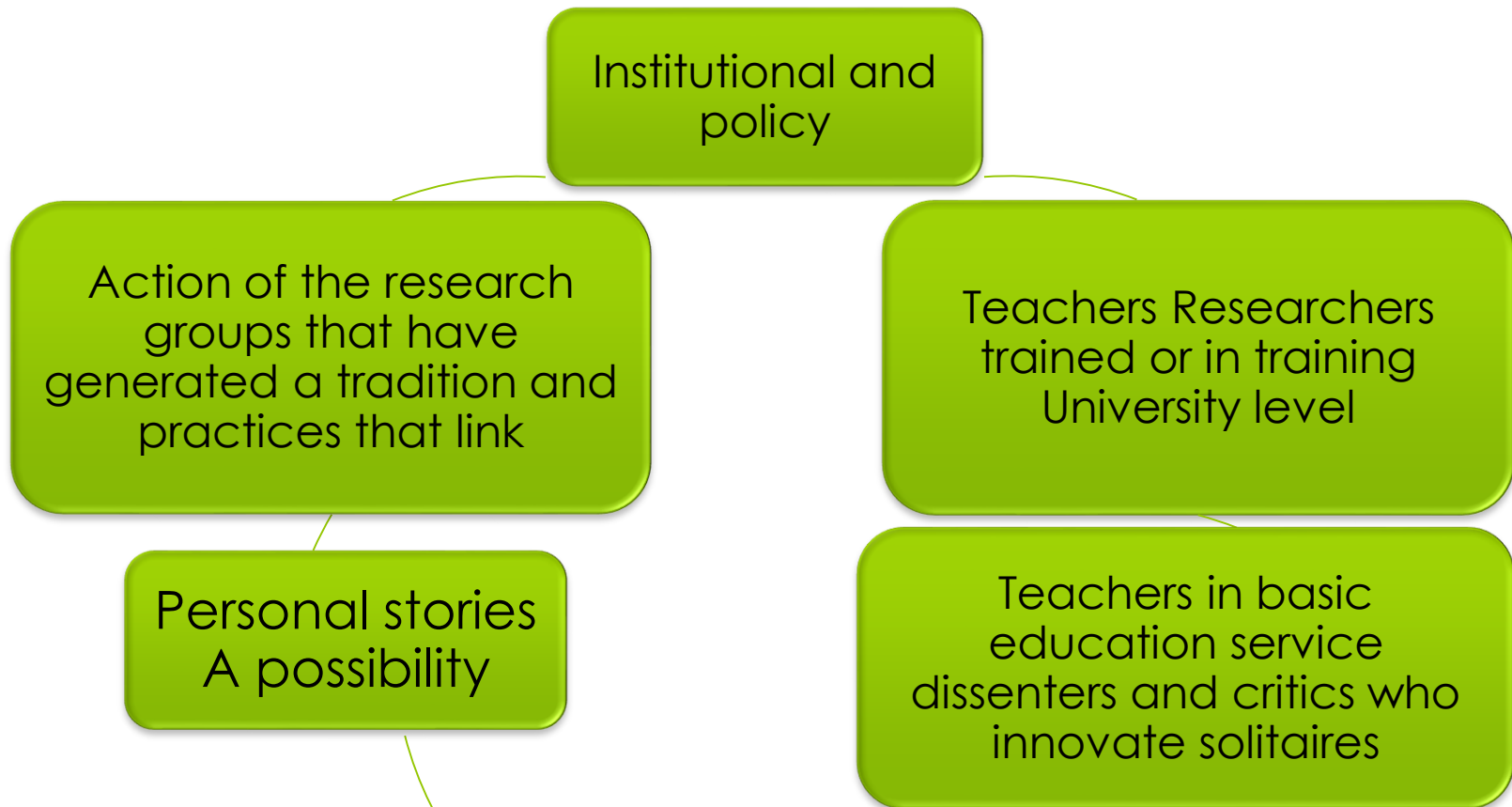


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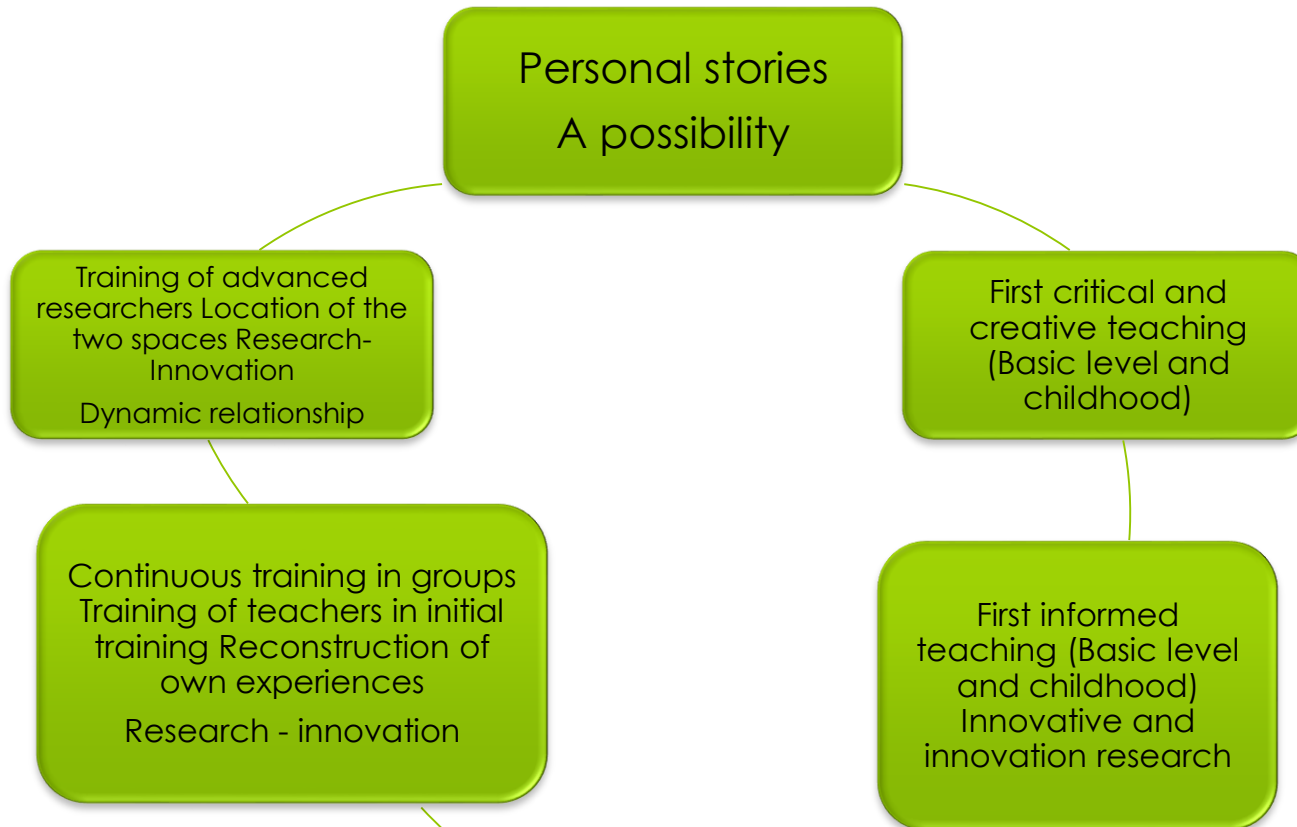
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# Thank You!

- [amolina@udistrital.edu.co](mailto:amolina@udistrital.edu.co)
- [mara.gracia@gmail.com](mailto:mara.gracia@gmail.com)