# Youth Commission of the Royal Spanish Mathematical Society

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*The Youth Commission of the Royal Spanish Mathematical Society aims to look after the interests of young Spanish mathematicians working in any professional field.*
*The commission carries out multiple actions, some aimed at analyzing the situation of young mathematicians and detecting possible problems within this collective, and others aimed at finding solutions to them, such as providing information on access to predoctoral and postdoctoral contracts and other jobs or organizing workshops that offer cross-disciplinary training, or that address specific problems such as mental health.*

The Royal Spanish Mathematical Society (RSME) is a scientific society whose main objective is to promote and disseminate mathematics and its applications, as well as to encourage research and teaching at all educational levels.

In this society there are different commissions that are responsible for the fulfillment of its different objectives. Each of these commissions has a more specific field of action, for example, one focuses on education, one on outreach, one on the role of women, and one on youth. In what follows, we will try to give an overview of some of the activities carried out by the RSME Youth Commission.

The Youth Commission aims to look after the interests of young mathematicians working in any field and location, in Spain as well as abroad. It is a transversal commission composed of about 10 young mathematicians coming from different professional fields and at different stages of their professional career, including PhD students, young PhDs, high-school teachers, or mathematicians working in the business sector. This composition changes every year, and members may not remain for periods longer than three years, in order to ensure that the commission is diverse and that new opinions and points of view are constantly being received.

## 1 Analysis of the current situation of young mathematicians

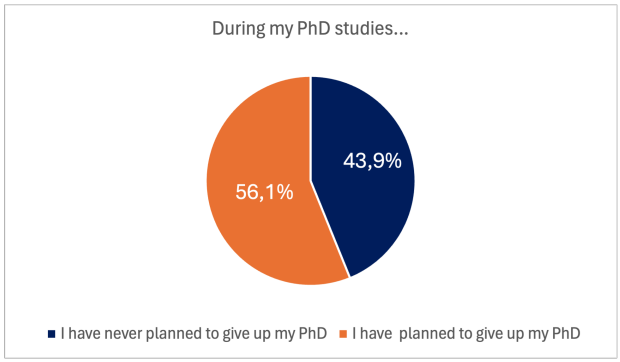
In general, among the young population, some of the main concerns are finding a stable job, having economic independence, or satisfactory working conditions that allow for an adequate balance between personal and family life. Although in recent years mathematics has gained more and more presence in all sectors of society, young mathematicians face difficulties related to achieving these goals at the beginning of their working or research careers. From the Youth Commission we try to identify these problems and determine their seriousness and extent. For example, over the past year, we have sought to obtain testimony about the mental health issues faced by young mathematicians, and to determine the extent to which young researchers consider abandoning their research career, or for what reasons they consider this option.

### *Leaving the research career*

In Spain, in recent years, there has been a growing serious concern about a possible loss of young researchers. In certain regions, some postdoctoral researcher or assistant professor positions are not receiving the necessary candidates to fill the positions offered. In addition, there is an increase in the number of people who, after defending their doctoral thesis, decide to work in the business world instead of continuing their academic career. The Youth Commission designed a survey to detect whether abandoning a research career was a possibility that many young mathematicians were considering. The survey was shared with all the faculties and research centers in Spain, and was disseminated through social networks and the official publications of the RSME. Almost 250 responses were obtained from young mathematicians. A summary of the most significant results was presented in [4, 5] and some examples are included in Figure 1.

Among these results, it is worth noting, firstly, that more than half of the respondents stated that they considered abandoning their thesis before its completion. The respondents include people who are still working on their thesis and also others who have already completed their thesis. If we consider only those respondents who had already defended their doctoral thesis, more than 70% of them considered abandoning at any time.

We asked what factors they consider to be determining when considering alternatives other than academic work: more than 90% highlight the lack of job stability as the main cause, followed by low salaries, mentioned by almost 70% of those surveyed. Almost 60%



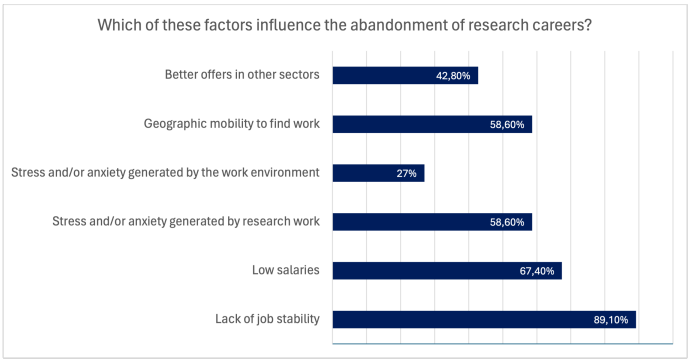




*Figure 1.* Some results obtained in our survey on the abandonment of the research career.

mention two other problems: the geographical mobility required for many research jobs, and the stress and anxiety generated by working in this field.

All these factors negatively affect the research landscape in Spain, and for this reason, we at the commission actively advocate that society must work to find collective solutions to these problems faced by young researchers.

### *Mental health*

Mental health problems appear as one of the causes that lead young researchers to consider a new future away from academia. Therefore, one of our objectives in the commission is to provide support and guidance in this area. To this end, several brief surveys were also conducted in an attempt to obtain some feedback on the acceptance of our activities and whether the young people consider them necessary and useful. We obtained some remarkable data, for instance that 80% of the respondents say that their work as a researcher causes them some disturbance in their emotional well-being, such as stress or anxiety. More than 70% consider that they do not have all the necessary tools to deal with possible stressful situations at work. More than 90% were willing to participate in activities that would provide them with these tools and resources.

### *Information on job opportunities*

In view of the opinions collected from young mathematicians, achieving job stability and a decent salary is one of the issues of most concern to young people. That's why from the Youth Commission we have compiled a collection of information on possible funding options for the pre-doctoral stage [1, 2], that can serve as an orientation for those who are starting in the world of research. In addition, to try to facilitate the job search process, the RSME together with Infojobs have launched a portal of career opportunities for mathematicians.[1]

[1] https://rsme-talento.infojobs.net

### *Contact us!*

We believe that the relationship between the RSME, especially the Youth Commission, and young mathematicians can be very beneficial for all of us, as we have stated in [3]. We want to be part of a RSME that serves as a meeting point with people who share a similar situation to ours, or who have gone through it before, and who can listen to us, guide us and give us advice. We also believe that society as a whole can benefit if it listens to the voice of young people, everything they have to say, and pays attention to their vision of the world. That is why we believe it is essential to have direct and fluid communication between young mathematicians and the Youth Commission, as a link to the RSME. To this end, we always have a communication channel open through our email, jovenes@rsme.es, where we are happy to receive your opinions and suggestions.

## 2 Workshops

One of the objectives of the Youth Commission is to provide learning and professional development opportunities for young mathematicians beyond the technical knowledge acquired during their bachelor's and master's degree studies. For this reason, we try to organize different workshops that serve to provide the participants with complementary and transversal tools and skills that will be useful for their professional career.

All the activities we carry out are free of charge, and since we try to accommodate people from all over Spain, the activities always have the option of online attendance. Figure 2 shows the posters of two of these activities.

### *Workshop on mental health*

The Mental Health Workshop is one of the activities that has become a regular feature of our commission. Three editions of this workshop have already been organized and have been a success in terms of attendance and reception. The latest one, held in


*Figure 2.* Workshops on mental health and mathematical education organized by the RSME Youth Commission.

December 2023, focused on resource management and emotional well-being [6]. Doubts and problems proposed by the attendees were answered, and tips and tricks were given that can help to manage work in a more efficient and healthy way.

For example, to face difficulties with time management, the psychologist in charge of the workshop explained how to divide tasks into categories: high and low demand tasks, and how to distribute our time alternating one and the other with breaks. Work was also done on how to detect limitations that one imposes on oneself, how to manage some common problems such as the impostor syndrome, or how to achieve an adequate relationship and communication with other people involved in our work, such as PhD advisors, scientific reviewers or senior colleagues.

We believe that this type of activities serve to slightly reduce the impact of some problems young mathematicians are facing. However, we are sure that we need to strengthen this initiative, and provide young people with many more resources for achieving an optimal mental health.

### *Mathematical Education Workshop*

This year (in 2024) we have launched another workshop, in this case with a more didactic orientation, focused on mathematical education. One of the great challenges of mathematicians has always been to achieve a correct transmission and teaching of mathematics to students, who have historically shown, in general, special difficulties and rejection of our subject. If we look, for example, at the results of the latest PISA report, we see that Spain has obtained the worst results in mathematics in history. It seems quite evident, therefore, that improving the teaching and learning of mathematics should be of priority.

The workshop, which took place last February, served to reflect on the way in which mathematics is taught at different educational levels, on which practices could be improved, which should be eliminated because of their poor learning results, or on what other innovative techniques we can use to achieve meaningful learning.

In our country, the didactic training of secondary-school mathematics teachers is reduced in almost all cases to a one-year master's degree, which in many cases is insufficient to deal with the great variety of realities existing in high schools and the needs of a very diverse student body. For university teachers the situation is even more serious, since in many cases they do not have any didactic training before teaching their first classes. In our objective of providing young people with this complementary and transversal training, this is a first small step, which we consider insufficient, and which must be reinforced institutionally, but which can help in some cases to overcome certain fears or to overcome small problems that arise in the day-to-day life of many teachers.

## 3 Future work

We are proud of the work we do, but we want to do more. Our desire is to be able to help all young mathematicians in the different aspects of their academic and professional careers. To this end, we will continue with many of the initiatives that are already in place,

such as the various workshops, but we have many improvements and new proposals in mind.

We would like, for example, to take forward initiatives that are more attractive to young mathematicians in the private sector, or to set up a mentoring program for the youngest people. To achieve more and better results, we are willing to continue working hard, but we believe that two fundamental pillars are necessary: collaboration, with more people and societies, and funding.

### *What is the situation in other parts of Europe and the world?*

Working at the local level offers certain advantages, as each country or region has its own particularities, which is why the existence of national or regional societies is important and valuable. However, from the RSME Youth Commission, we are also interested in knowing what the situation is like in other regions of Europe or the world. Within our commission we have people who are working from other countries, or who have stayed or worked abroad, and they can give us a first version of the differences and similarities with our country.

However, for the future, it seems interesting to collaborate with other institutions and organizations in other regions of the world, such as the EMS Young Academy, and to try to compare the situation in different places, e.g., the conditions under which young people work in each case, and above all, what we can learn from what is being done in other parts of the world, and is currently achieving good results.

### *Imagine if we had funding!*

One of the major problems that science is facing in all of its fields is the lack of funding. So far, all the activities developed from the RSME Youth Commission have been carried out without funding, and therefore by resorting to volunteers who selflessly offer to share their knowledge and enthusiasm in their area of expertise, be it mathematics, didactics or psychology, among others.

At present, and in order to defend our belief that any work should be adequately recognized and remunerated, we are trying to obtain funding from research centers or official calls for proposals. We believe that having sufficient resources will favor our ability to continue organizing activities that are of interest to young people, and will open up new possibilities, achieving a greater reach and impact of all our actions.

*References*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