A necessary dialog about mathematics and society between university students

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The mathematical education has among its goals the education for the citizenship, and in these aspects is also considered an education that helps the citizens to the participation in a democratic society. The actual research concern is the preservice courses for future teachers. In this paper WE want to talk about the necessity to extend this responsibility of mathematics and of Mathematical Education, to the preservice formation of all the professionals.

The mathematical education has among its goals the education for the citizenship, and in these aspects is also considered an education that helps citizens to the participation in a democratic society. This is made usually in preservice courses for teachers, as much for Primary Education teachers, as for Secondary Education teachers. In this article we want to talk about the necessity to extend this responsibility of mathematics and of Mathematical Education, to the preservice formation of all the professionals. Nevertheless, at this moment, the only environment where we have the possibility to influence is in the preservice formation by means the university courses.

The great part of the research carried out with the idea that mathematics are a vehicle for social change, has been centred in its role in the primary and secondary education. We believe that social influence of mathematics is real because through mathematics people exercise the power, the dominance, the selection, the exclusion, etc. As a result there is a field to which we should pay attention, that is the preservice formation of all the citizens. When we say preservice formation, we refer, not only to the classrooms of Primary and Secondary Education, but to the training in the subsequent studies, those that are previous to their access to the professional stage.

The only place where we can exercise the necessary influence, or rather, to take contact with those future professionals, is when they are at university. In a first moment, it could seem that we should limit to the future teachers, but, if it is true the statement that mathematics is a critical activity and for criticizing the world, we believe that we should also pay attention to the other university students.

The reason for it is that in all the activities, or in almost of them, mathematics appear in a certain way, and they can be employed as a means of liberation or oppression. On the other hand, without considering people's occupation, mathematics is present in almost everyday life. In this case,

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mathematics are not employed by us, but towards us (media, use of tools, technology, buying and selling,...), and they also carry out here the role of oppressor or liberating, according to the knowledge that each one of us has about them. All this justifies that our interest is not limited to the relationship between mathematics and society in the field of the professionals of education, but rather it extends to the other university students.

For the last three courses we have imparted a subject guided to cover this objective, their title is, 'Mathematics, Critical Education and Society'. The students can belong to any university course. We had students from Architecture, Chemistry, Engineering, Education, Psychology or Sociology Colleges. The different background of these students enriched the contributions, the communication and the learning between students and the teacher.

The course has a weekly session of 2 h. (30 hours in all). For the development of the program, texts are distributed from authors implied in the study of the relationship between mathematics and the social problems, and newspaper articles. The work in the classroom is based on the comment and debate on the texts proposed in the previous sessions. Something that enriches the debate and help to change points of view is their background, interests and previous knowledge. For example, the students who come from technical careers as architecture or engineering have a vision of mathematics as an exact science and far from all social aspects. Also, the fact that the name of this subject begins with the word 'mathematics' is what has attracted these students, thinking we will talk about mathematics. Then, we have in these students a first reaction of astonishment and discussion on the role mathematics have in the world.

We believe that in these years, by means of this subject, some ways of thinking and conceptions have been changed about the role mathematics is carrying out in society.

In this moment it is necessary to build an agenda to study how to increase the democratic competence of students through others actions.

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