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Introduction

Thank you very much for inviting me to present the concluding remarks for the conference "New milestones for inquiry-based science education in primary schools in Europe".

As a representative of acatech, the German Academy of Science and Engineering I am aware that a reform of science education in Europe is urgently needed. This is particularly necessary if Europe wants to and actually must compete internationally. But science literacy and also technical literacy of its citizens is not only necessary for competing on an economic level. Science also represents a rich domain of our culture and should be shared with all. Technical literacy is an important requirement to understand and take part in the development of our modern society. Thus, I am pleased to have been asked to present some conclusions of this conference.

Panel one: Inquiry-based science education (IBSE)

During this conference, numerous contributions from many different countries have clearly demonstrated that inquiry-based science education – IBSE – is a powerful teaching method to increase the interest of children in science. It was also evident that programs to change science education within Europe have to be adapted to the culture of the country in which it is implemented – to consider the prevailing "local content" is simply important. . But it was equally evident that certain elements had to be implemented, if such programs were to be successful. This includes e.g. to listen to the need of the teachers and to develop teacher training that relates to such needs.

Panel four: Science and cross-disciplinary teaching

It was also clearly shown that a good IBSE program also influences other teaching areas such as mathematics and language skills. Science is a subject that is ideal for interdisciplinary teaching. Considering the increasing number of immigrant and second language citizens in Europe, improving language skills is important. But also the number of mother tongue children that enter school with insufficient language skills is increasing.

Panel two & three: Community participation & support for dissemination /  
Involvement of the scientific community

Panels two and three, made it very clear that reform programs of science education need the involvement of the whole community, starting with the parents and neighbourhoods, but also private foundations and industry are important. There are indispensable stakeholders such as local and national education authorities. It has also been evident that members of the science communities in different countries have been key players to initiate science education reforms. Strong examples have been demonstrated by the French and Swedish National Academies, that have both initiated national education programs.

## Europe

When we look back at the various debates in Europe in the last years we find excellent European and international reports that have analyzed the current status of science education, the attitude of young people towards science, the needs for developing new competences for a variety of careers, the serious issues of the shortage of scientifically skilled personnel in industry. Without underestimating the importance of informal education, these reports show a consensus that there is an urgent need to act in a collaborative manner to initiate reforms of the formal education systems, and this holds true for all education levels, beginning with pre-school.

The participants of this Conference, coming from all EU countries, wholeheartedly agree that science and science education must play a central role for the future development of Europe. The Conference unanimously agreed that many analyses exist clearly detailing the reasons for urgent action at various institutional levels, both within each of the European countries but also on a European level.

I thank you very much for your engagement and hope to work with you to strengthen Europe – for best educated citizens.