

The Closing Ceremony

Reports from the ICMI EC

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Lena Koch:

ICME-14 is like every ICME held on the other places of the International Commission on Mathematical Instruction. It's a tradition that the ICMI secretary general reports about the activities of the ICMI EC since the last ICME. As you all know, ICME-14 must be postponed for one year due to the pandemic. Therefore, the past and the current secretary general are reporting today.

The Secretary General for the term 2017 to 2020 was Professor Abraham Arcavi from Weizmann Institute, Israel. Since 2021, Professor Dorier from the University of Geneva in Switzerland is the new Secretary General.

I have the pleasure to work with Professor Arcavi for 8 years, and I want to take this opportunity to thank him for the wonderful and intensive collaboration during this time.

Since 2021, I have the pleasure to work with Professor Dorier, who would have reported about the activities of the new EC since January 21. And it's still overshadowed by the pandemic and its applications.

I can confirm first hand that the workload of ICMI's secretary general and also of ICMI's president is really immense.

Now I would like to show you the impressive numbers of ICME-14.

ICME-14 had more than 3988 registered participants from 129 countries. We had 592 scholars who received the Solidarity Grant/waiver of the registration fee. More than 417 teachers are registered and participated. There were 4 plenary lectures, 3 plenary panels, 4 national presentations, 65 invited lectures. There were 62 T.S.G. with almost 2,000 presentations. There were almost 1500 oral presentations. There were 334 posters, 16 discussion groups, 27 workshops and 13 thematic afternoons.

I would now like to give the word to Professor Arcavi and Professor Dorier.

Abraham Arcavi:

Thank you very much, Lena. It is an honour and pleasure to be here for the closing ceremony which is the tradition that the secretary general gives a report of the last 4 years'

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activities of the ICMI. Given the circumstances, I will join this presentation with my colleague Jean-Luc Dorier. And I will present the data from the 4 years, and Jean-Luc will present the activities of the first 6 months of his term in the office of secretary general. So most of them are then debarred for carrying this institution, isn't the shoulders of the executive committee. This is the executive committee (EC) of the last 4 years. It is our first meeting, in Geneva, under the leadership of President Jill Adler (Fig. 1).



Fig. 1. 2017–2020 ICMI Executive Committee

And this is our last meeting, last year in September 22. That was, as you can see, online (Fig. 2).



Fig. 2. Online ICMI Executive Committee in 2022

Jean-Luc Dorier:

And this is actually the first meeting online of the new ICMI Executive Committee. We have to face the new situation because unlike the preceding ECs, we weren't able to meet face to face. So, we decided to have a 2-hour meeting because of time differences, since one of our EC members Marta Civil is in Arizona and our vice president Merrylin Goos

is in Brisbane in Australia. So, two hours' meeting means that Marta has to start at 05:30 in the morning and Merrylin has to finish it at midnight. We have so far four 2 hours' meetings, which is great because we've managed to do quite a lot of things.

Abraham Arcavi:

Well, ICMI is, as you know, a commission of the IMU. And I would like to divide the report into the 2 main groups of activities that ICMI is in charge. I will refer to the organization and policy on the one hand, and on the other hand, the education, research and dissemination activities of ICMI. So, under organization and policy, I should remind everyone of us that we are a commission of IMU, the International Mathematical Union. The president, the secretary general, and usually one more president from the executive committee of the IMU are ex-office members of the ICMI executive committee. During our four years, we have the honour and pleasure to work with these 2 presidents, Professor Shigefumi Mori from Japan and Professor Carlos Kenig from the United States, and secretary general Helge Holden from Norway. The IMU, as I said, is our overarching umbrella. They provide us with the institutional support, mainly we learn from them and we apply their relations and the spirit of international, inclusive in our collaboration. We receive most, if not all of the funding in a direct way from IMU or through their commissions, like CVC. And we also receive advice and guidance from them all over the EC meetings and more.

Jean-Luc Dorier:

Actually, if ICMI celebrated its first hundred anniversary in 2008 in Rome, IMU is about to celebrate its first hundred anniversary. Actually, the conference was scheduled for last September, and now is rescheduled for next September in Strasbourg due to COVID situation (Fig. 3). You can actually read the very nice historical vignette about

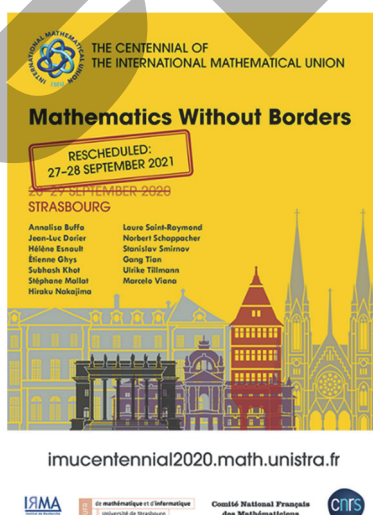


Fig. 3. The Centennial of the IMU in Strasbourg

all the stories of ICMI in IMU in our last ICMI Newsletter by Bernard R. Hodgson. So now your turn again, Abraham.

Abraham Arcavi:

Yes. So, the second item of our group of activities of organization is that ICMI has innate country representative which is a person that represents a country who is in contact with the executive committee to exchange ideas. And they have the obligation and the responsibility to disseminate information and to make suggestions. And this is, we can say, our senate in the sense because they vote on the conference for the executive committee every 4 years. The activities that we did with country representatives, most of all, are trying to renew our context with them, reactivate their activities, such as their really active participants in all ICMI activities. Most of the 83 members of ICMI are IMU members, that can become automatically ICMI members, but 7 countries are non-IMU members, but are ICMI members. As I said, we mostly do the renewal of the list and renewal of the context. We wrote documents taking their roles and responsibilities that can be found in the web. ICMI has affiliated organizations. And these organizations have lives of their own. There are two kinds of organizations in the last year of the last executive committee. We tried to put some reorganization. We classified the affiliated organizations into 2 groups: the thematic affiliated organizations and the regional affiliated organizations. These three organizations were really nearly, because there was some confusion about the categorization that was previously used. The thematic affiliated organizations are the following, as you can see, with many topics and many themes of interest. And during our period, most of them are old organizations. There was one organization requested to affiliate with ICMI, and they set up their activities, which is International Society for Design and Development in Education, incorporated in 2017. There are also 8 regional affiliated organizations distributed all over the world from Africa to Asia to Latin America to Europe. During last 4 years, 2 new organizations joined the ICMI as affiliated organizations. One main issue of organization for ICMI is the ICMEs. The job or the tasks for the ICMI regarding ICMEs has several faces. First of all, we do it a bid which calls for proposals to countries that would like to host a conference. Declaring of a bid includes a long process that ultimately results in selecting one of the countries that sends a proposal. In the case of the last EC, there were three countries and one was selected, that was Australia.

The other task related to ICME by ICMI is to select the international program committee of about 20 members. And that was admitted last year, the IPC for the next ICME in Australia. To refresh the guidelines, how an ICME should be functioning, what kind of activities should be in the ICME, and how the IPC should perceive. Of course, at last, there were a lot of activities in 2020 even in the unusual circumstances of pandemic. We have to postpone conferences and carry conferences in a virtual way

online. These occupied most of the 2020 year with a difficult decision of the postponement of the 2020 conference. Another important organization-related issue is having the general assembly before ICME, where all the countries' representatives who can't come to meet in the general assembly. The general assembly has several activities. The main one is to select the new EC for the next four years. Unfortunately, the general assembly could not take place because ICME was postponed but it could not be postponed, so we did it online, for one hour only. Fortunately, 55 country representatives could attend, which is the largest number ever. We did it only during one hour because of the time zone differences. During this one hour, there was reporting, and also instructions for the election which was carried out over three days online with very careful system of controlling different clock. Another organization activity is that of the ICMI awards. Actually, it's the prerogative of the ICMI president to select the committee that we work on the awards and from then onwards that the committee are completely attendant. They work in a very descriptive way. Their members are not known until their turns are ending. So, the activity of ICMI here is very reduced except when their awards are announced ICMI does the dissemination, and of course, presents to deliver their awards in the opening ceremony. Our executive committees were nominated on the document which is called the conflict of interest for the first time. It was very clear and explicit to put it in the document how the committees should work for the conflict of interest, and also their reformulation of the guidelines. For example, our executive committee decided the frequency of their work would not be every 2 years, but only every 4 years. The committee award was very high in differentiating the client for Hans Freudenthal award because there were some confusions about who is eligible for which of these awards. And I think this differentiation is now being made. It's a clear document being posted on the website. And, also, there was a close relation regarding Emma Castelnuovo prize, restricting the submission of candidates to persons or small groups, but not large institutions. Across all the items from country representatives to ICMI awards, one of the main jobs of the last EC was to reorganize the guidelines and regulations for the functioning or funding these committee. All of these guidelines and regulations are both in the website for people to look at them. The second group of activities is education, research and dissemination. A main activity in ICMI Studies is known to many of you. This was the last published ICMI Study.

And for the first time, the decision of the EC was to make it an open access, namely, everybody can roll into the website, and read, and download chapters of the whole book, or whatever. So, the ICMI EC decided to devote funds for that purpose, and given the success of this experience, we went back and decided to fund the publication of an open access for three of the latest ICMI Studies that are now also open access available in the web (Fig. 4).

Two ICMI Studies are on the way, and are close to the final stage of publication,

ICMI Study 24 on school curricula and 25 on teachers' working in collaborative settings. So ICMI is now projecting for the future.

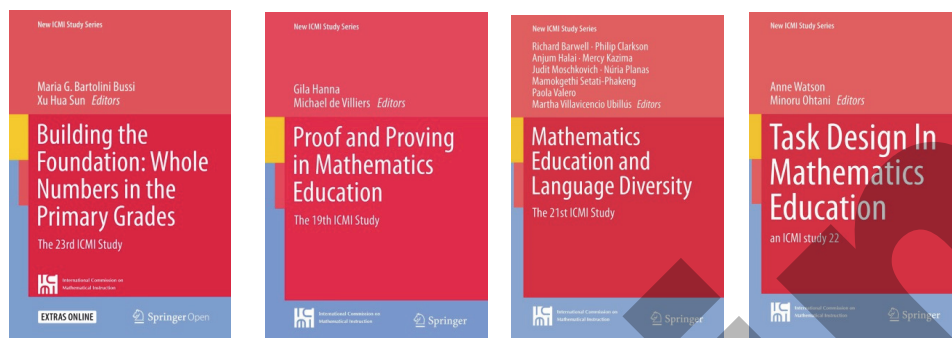


Fig. 4. Recent ICMI studies in open access

And then we let Jean-Luc to talk about this. Oh, sorry, before that, the ICMI decided to do a survey in order to evaluate the effectiveness and how their Studies are viewed, used and regarded by the international community. So the first part of the survey was completed and its result was published on the newspaper. It was a quantitative part with an interesting result. And now, the second part has been carried out, which is more qualitative, case by case with interviews, and more personal qualitative kind of information.

Regarding the future of ICMI Studies, I will let Jean-Luc talk about this.

Jean-Luc Dorier:

Yes, thank you, Abraham. Yesterday in its meeting the new ICMI executive committee was very interested in ICMI Studies. The thing is that we are very much in favour of continuing being the last EC concern of having all the ICMI Studies to be open access. So, the new ICMI Studies should be open access straight away. We're also working with Springer to have old ICMI Studies to be open access as well. And we are planning for the future to our new ICMI Studies during our term, even though the 4 years of a term for EC is not enough to do the whole of the process, but for the first time in the ICMI history, because before that, the choice of the team for new ICMI Study either came from the ground position from people spontaneously or from the EC members. This time, we decided to put a call for proposals for new ICMI Study which has been published in the special issue of our Newsletter in last June, so I really think that you should go to the website, and see for these calls. In these calls, we see that the proposal should address the following essential 3 elements. The 3 elements are that: the theme is of broad international interest, representing either a mature or emerging field; the second one is that there is sufficient substance in terms of research, literature and practice in a diversity of contexts and cultures, to ensure productive work and to provide a coherent and useful vision of the theme at stake; and the third is that there is

a critical mass of scholars of renowned expertise in the theme who can provide leadership, vision and experience and are committed to invest the effort involved in the production of a Study over a 4-to-5-year time frame. So, I hope that we're going to get a lot of proposal and choose new themes for a new ICMI Study. OK, Abraham, your turn again.

Abraham Arcavi:

The second main activity under education, research and dissemination is the CANP. The project is aimed at the recreation of communities all over the world in developing countries in order to consolidate and coordinate activities among mathematics teachers, mathematicians, and mathematics educators. So far, five regions have become successfully (Fig. 5), and I hand out to Lena to talk more about this.

Lena Koch:

So, a major resource of the CANP project is the publication of three SpringerBriefs about mathematics teacher education in three CANP regions (Fig. 6). And the books have been made available open access last year and we do recommend you to have a look at them. In 2016 and 2017, a survey was made and showed that the project is very successful, but it also showed that all 5 networks still need some further support. Therefore, the EC from 2017 to 2020 decided in 2017 to focus on consolidation and expansion of the 5 regions instead of having a sixth account. During this period, various activities took place, but they were slowed down by the pandemic. At this ICME, representatives of all five CANP regions met as a discussion group and they discussed mainly about the impact of the pandemic in their regions and also to math education. The new EC has already decided to continue its support for the five existing networks. Now I give back to Abraham.



Fig. 5. CANP in five regions

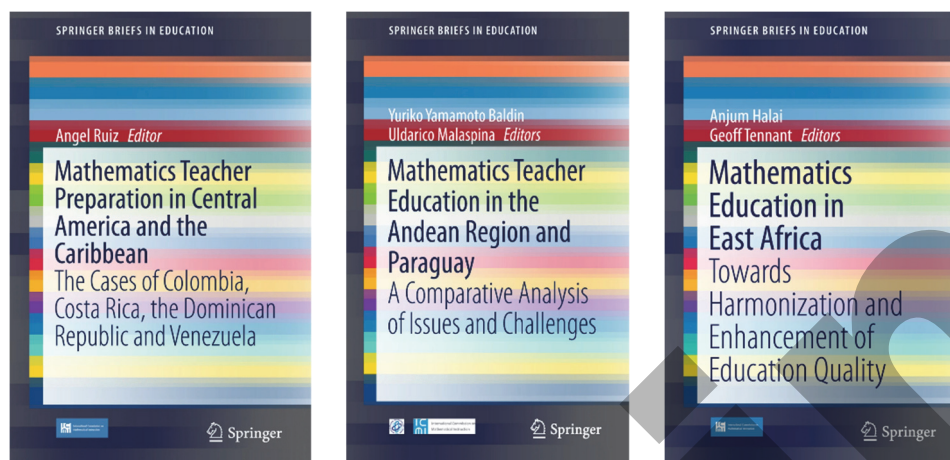


Fig. 6. Three SpringerBriefs about mathematics teacher education in three CANP regions

Abraham Arcavi:

Thank you, Lena. The third major project that was born out from official suggestions of former IMU president Ingrid Daubechies about conducting MOOCs. And it was Jean-Luc Dorier who took the responsibility, as then he was an EC member, of developing this MOOCs. So over to Jean-Luc to explain about this project.

Jean-Luc Dorier:

Thank you, Abraham. It's actually not quite MOOC, because MOOC needs a lot of processes in everything. We call it AMOR for Awardees Multimedia Online Resources, which means that there are all resources that can be used in the MOOC but we are not doing the MOOC resources. So, the idea was to post some online resources about different aspects of mathematical education as beginning with more into research. So we decided to use the works of the awardees and we started with a French team by Michele Artigue, and Claire Margolinas, Annie Bessot for Brousseau, and Marianna Bosch for Chevallard. And then I worked with Anna Sfard, and with Abraham as well. And Anna started a unit. And now that we've started with a new EC, Núria Planas has joined us, and she has made Celia's Unit start. So, we have, at the moment, actually 4 awardees who have started their unit. We are planning quite a few more in the next years.

It's going to take a lot of time, but we are doing it slowly, but we are going to there. Marta Civil has also joined us, and she's working with Alan Schoenfeld to do some things, and we are thinking of course of Ubiratan D'Ambrosio. The units are made this way in each unit there are modules, starting with module 0 which shows the background. Then in each module, you have a short text of presentation, and then you have the main part of the module which is the video. You can see module 1 of Michele Artigue (Fig. 7).

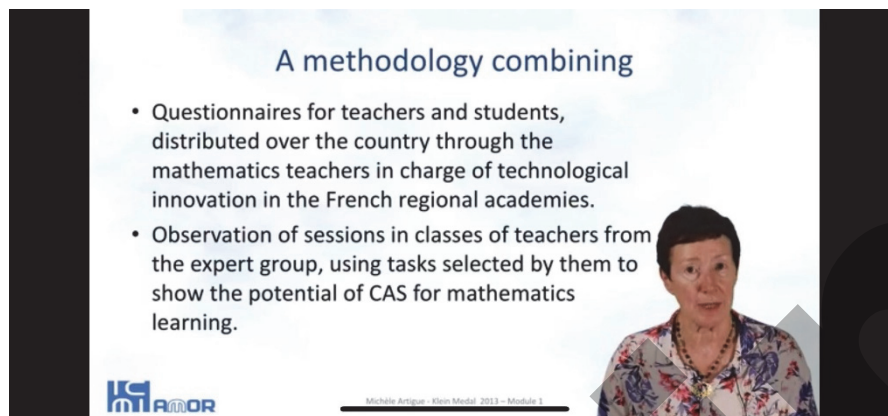


Fig. 7. Module 1 of Michele Artigue

Michele Artigue is actually the only unit which is completely finished. Yves Chevallard's unit is nearly finished, only one module is missing, Brousseau is two-third, Anna Sfard is about a half, and Celia has only started. And then, after the video, which is about 20 minutes, you have a list of texts, most of which are open access, so you can download them from the website of AMOR.

And you have those texts which are referring to the video, and it's a way to have access to the works of the awardees and to the idea of what is a research of mathematics education around the world. We are also planning now to have something for the Emma Castelnuovo Award, and we are working with Hugh Burkhardt on his unit. Thank you, Abraham.

Abraham Arcavi:

Another project of this category is the Klein Project, which is the development of a collection of short vignettes in which mathematicians communicate with teachers about cutting-edged issues of mathematics in a way that is accessible to the teachers not necessarily for them to teach these subjects in class but for their own enhancement of their mathematical knowledge. There is a very interesting blog with all the vignettes translated it into several languages, open for everybody to use, and our EC are appointed to ask Weigand to lead this Klein Project and his expanding committees and renovating, so more activities would be developed in the future.

There is a discussion or a workshop in this conference that was on the Klein Project. The International Day of Mathematics, Jean-Luc would say something about it.

Jean-Luc Dorier:

Thank you. This is also quite a new initiative from IMU mostly, but we are both in it. The International Day of Mathematics is planned every year on March 14, because March 14, as you know, is Pi Day. So, you have a very nice website where you can see all the events that were planned last year for the International Day of Mathematics all around the world. As you can see on this map, there are masses of things everywhere

in the world, and we are glad to be part of that (Fig. 8). Thank you.

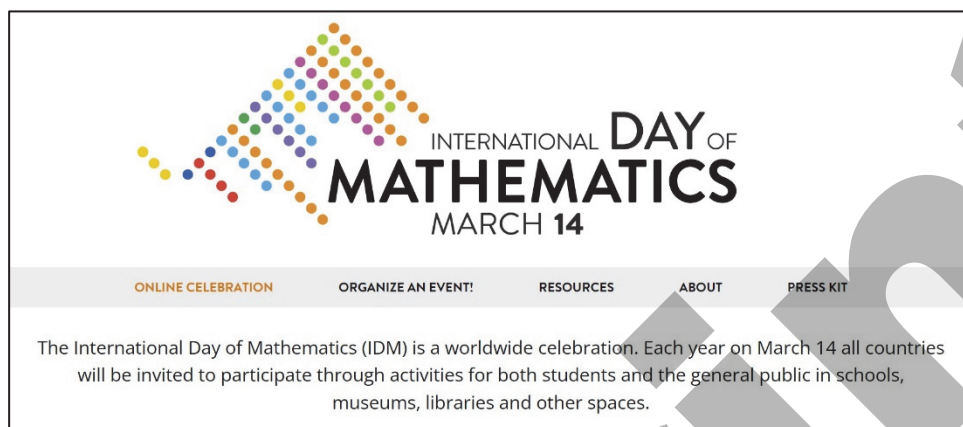


Fig. 8. International Day of Mathematics

Abraham Arcavi:

There is also an interesting project started some years ago, which is through putting all up in the website a large database of a curricula project all over the world. The country representatives contributed to the database by submitting official country curricula documents at all levels and all ranges of mathematics education. If you are curious about what are the curricula in several countries, you can go and see as the database is continuously being updated. Finally, there is an archive in which former secretary general Bernard Hodgson collects historical and other documents. He also works for the archives of the IMU, and he has started the work in ICMI Archive. Some products of his work in the Archive are reflected in his vignette that appears regularly in the newsletter telling about interesting issues about the history of ICMI.

Before we finish, I would like to say some personal words about how this unusual circumstance of doing the delivery of the closing words for the ICME congress. Give us the opportunity to display how from one executive committee to the other, there is a continuity. Here we see, I was the secretary general six months ago, and Jean-Luc took over, as you can see in our joint presentation, the continuity was very salient. I would like to stress that and say thank you to Lena and Jean-Luc for keeping the work for adding new initiatives. And finally, Jean-Luc, your closing words.

Jean-Luc Dorier:

Well, I will return the thank you to you, because you are here today, six months after the end of your term and you are still in charge, and it has been quite a deception and a lot of work for you to have to face this situation. It wasn't easy for nobody, and especially for you and Jill, I think it has been a very frustrating situation, and I really appreciate the fact that we are still working together. I must say that Abraham is a very

dear good friend, and we have been good friends for many years. I'm really very thankful to him and very proud that he trusts me to be the successor. Thank you.

Abraham Arcavi:

Thank you.

Jean-Luc Dorier:

Well, so please stay tuned which means that you should be in contact with ICMI all the time. We have many ways of being present with you. The website is actually one of the biggest issues we want to refresh (Fig. 9).



Fig. 9. Website of ICMI

We are working with Merrylin Goos, Lena and Susanne Prediger. And we also have some more fancy ways of being in contact with you with Facebook and there is, of course, the ICMI Newsletter, and you can find that on the website.

Lena has made great job of renewing it completely in form. The last ICMI Newsletter published on July 1 is the first issue of that new form. And you can also write to your country representative, and we are working with them to be present everywhere in every country, in every part of the world. One thing in ICMI is that we want to be inclusive, and we want to be part of your work everywhere in the world especially in the countries which are more difficult to reach on the planet. And so anyway, we are looking forward to meeting you all face to face in July 2024 in Sydney (Fig. 10).

Even though it's completely close to any travelling at the moment, but we are working on the preparation of this conference which will be the first post-COVID conference. I wish we are able to offer this friendly and very nice conference in Sydney. See you then, bye.



Fig. 10. ICME-15 in Sydney

Frederick Leung:

Thank you very much, Abraham, Jean-Luc and Lena, for presenting this report of ICMI. As all of us can see, ICMI has been doing a lot of work in the past four years. I am sure some of you already knew about this work, or some of this work. But I am also sure that not all of you know all of this work done by ICMI. So, I hope that the report will help you understand the work of ICMI better.

ICMI is devoted to the development of mathematics education in all areas and at all levels around the world, and to promote international cooperation. For that we need the involvement and the support of the whole mathematics education community, including the ICME participants here today. My hope is that after learning about the work that ICMI does, your attention and involvement are not just confined to your own research area or to your own geographical area or your own country. I hope you will think of yourself as part of the worldwide mathematics education community, and support the work of ICMI to make mathematics education better for the whole world.

There have been already many thank you words spoken earlier in this closing ceremony. But I really want to thank the local organizing committee — they are doing a marvelous job. In organizing a physical plus an online conference, or a hybrid conference, one plus one is much greater than two as far as the organization workload is concerned. You are doing the equivalent of more than five conferences in the efforts that you have been putting into this!

I know that there are many people involved in the organization of this conference and ICMI wants to give a present to each of you. But if I buy a present for each of you, ICMI will be bankrupted! So what we have done is we have bought three presents. I will call upon the names of three people representing all of you who have worked so hard for the conference.

The first one is Professor Jiansheng Bao, co-chair of the local organizing committee.

The second one is Professor Binyan Xu, co-chair of the local organizing committee.

Last of course is our Honorable Professor Jianpan Wang, chair of the conference.

These are Switch watches. Let me explain. Usually it is the ICMI Secretary-General's job to do this, presenting a present to the organisers. But because Jean-Luc cannot join us here — he is in Switzerland at the moment. So he flew in some watches from Switzerland — to a shop in Shanghai! and then I went to buy these watches for the three. This is just a token of appreciation.

Thank you very much. Thank you.