IUPAC
Advancing Worldwide Chemistry
International Union of Pure and Applied Chemistry

SCIENCE ACROSS THE WORLD

Young Ambassadors for Chemistry

Project 2003-055-1-050
2004-2007

Final report

Lida Schoen

Signature
Director Science across the World

Signature
President IUPAC

design YAC logo
Nicolás Fossati, TS Eliot school
Buenos Aires, Argentina

gsk GlaxoSmithKline

Young Ambassadors for Chemistry (YAC)

Contents

1. Project 2004-2007 2
2. Poster competitions 2
3. Dates and locations 3
4. Venues and organizers 3
5. Participants 4
6. Local support and visibility 5
7. Workshops 5
8. Language and translations 6
9. YAC events 6
10. Results from Roving Reporters 7
11. YAC events: visibility and media coverage 8
12. Acknowledgements 9
13. Spin off 10
14. Conclusions 10
15. Future 10
16a. Publications about YAC 11
16b. Publications about the poster competitions 11

Young Ambassadors for Chemistry

1. Project 2004-2007

The **Y**oung **A**mbassadors for **C**hemistry (**YAC**) project (www.iupac.org/projects/2003/2003-055-1-050.html) aimed to enhance Public Understanding of Chemistry through teacher and student school audiences in target transition regions.

The project was carried out in partnership with Science Across the World, a successful global science education programme, to train teachers and provide resources to develop the communication skills of young people and teach them to be Young Ambassadors for Chemistry (YACs).

The project was carried out in Taiwan, Russia, Argentina and South Africa. Korea joined the project, facilitated by the Korean Chemical Society, as part of the Year of Chemistry 2006 celebrations.

Travel and subsistence were met by IUPAC, costs for two trainers[1] by GlaxoSmithKline (Science Across the World) and local costs were covered by the local host institution and partners. This meant that many organisations helped with money, expertise and materials[2].

2. Poster competitions

The project built on the successful collaboration between IUPAC and Science Across the World in a global poster competition for children: 'It's a Chemical World', featured on the cover of the Nov/Dec 2003 issue of *Chemistry International*.

Apart from starting YAC, we organized a second competition in 2006: 'Chemistry for Humanity', facilitated by the Korean Chemical Society. The results were shown during ICCE 19 in Seoul (report in the Jan/Feb 2007 issue of *Chemistry International*).

[1] Dr Lida Schoen (Netherlands, chemistry) and Keith Kelly (UK, communication)

[2] See 'Acknowledgements' at the end of this report

Runner up Magy Ezzat receives her certificate from the principal of El Nasr Girls College in Alexandria (Egypt)

Prof Choon H. Do and Dr Lida Schoen in front of the winning posters 'Chemistry for Humanity' during ICCE 19 in Seoul, Korea (2006)

Runner up Annie Chen receives her certificate from Nobel Prize laureate Prof Yuan Lee (Taiwan)

3. Dates and locations

Country	Town	Dates
Taiwan	Taipei	**2004**, 22–26 November
Argentina	Buenos Aires	**2005**, 9-15 May
Russia	Krasnoyarsk	**2005**, 14-18 November
Korea[3]	*Gwangju*	***2006**, 20-24 February*
South Africa	Grahamstown	**2007**, 19-23 March

4. Venues and organizers

Country	Venue	Organizer	Affiliation	Local organizer
Taiwan	National Taiwan Normal University (NTNU), Graduate Institute of Science Education	Prof Mei-Hung Chíu (IUPAC)	National Taiwan Normal University (NTNU)	Prof Mei-Hung Chíu, Dr Shu-Nu Chang (IUPAC)

[3] YAC Korea was not part of the IUPAC/Science Across the World project funding, but completely facilitated by the Korean Chemical Society.

Argentinean students prepare their cosmetics

Russian students prepare their sweets DNA

The training enabled the participants to instruct the students for YAC day. This procedure worked very well, YAC events went smooth with trained teachers and clear instructions for the students. Enthusiastic students built their DNA and designed, produced and marketed their cosmetic lines. We collected a variety of wonderful new brands!

Our juries had the hard job to choose the student groups with the best TV commercials. In Grahamstown, South Africa we watched 18 creative commercials! At the end of the day, the winning groups received their prizes and all students were offered a certificate of recognition and presents from the different participating sponsors.

Winning TV commercial in Gwangju, Korea

Science theatre in Krasnoyarsk, Russia

Prof Norma Nudelman and Mónica Tosi distributing the certificates in Buenos Aires, Argentina

A big surprise was the use of theatre and music. Complete new 'Chemistry' songs were composed and all scientific nonsense, sometimes used in real commercials, was gratefully used!

In Krasnoyarsk the event ended with Science Theatre by a group of primary students. The story, written by a young student, dealt with a witch that misused chemistry, but end good, all good! And the event really ended with song and dance with a large part of the audience.

10. Results from Roving Reporters

Apart from the students who worked on cosmetics and DNA, our roving reporters questioned the public about the event and their opinions about chemistry. During the first events they asked:

1. Do you know what is happening here?
   Most people knew some information about the event.
2. Is it useful for pupils to study science?
   All of them answered that it was useful.
3. Did your attitude to science change?
   The majority of the visitors said that it changed.

Following are a few comments about the event and chemistry in general that the public made to these reporters: 'the event should also be organized in elementary schools and community centers', 'this display helps us understand life and the world', 'chemistry has a positive influence on our life and can improve our society', 'by applying chemistry to everyday life, it is easier to

learn', 'the first thing I think about when I hear ‘chemistry’ are explosions', 'my impression about chemistry comes from tests (exams)'.

Later we slightly changed the questions to:
1. Do you know what the students are doing?
2. Do you like what the students are doing?
3. What can you remember of your own chemistry lessons in school?

This last question showed a variety of answers from negative: 'chemicals are dangerous', theoretical: 'mercury is very heavy and sulphur is very yellow', 'I still remember the tests for the gases and most of the Periodic Table', practical: 'I know that chlorine kills harmful bacteria in water' to appreciative: 'we did not have these kinds of things in our generation, but we are glad for our children'.

Two experts (Prof Mei-Hung Chíu, Taiwan and Dr Erica Steenberg, South Africa) are analyzing the collected data in more detail.

Roving reporter questions the public in Grahamstown, South Africa

11. YAC events: visibility and media coverage

Country	YAC branding	Publicity
Taiwan	Banners YAC bags Materials book Posters Certificates YAC balloons Stickers	United Daily News, Taiwan's newspaper with the largest number of subscriptions
Argentina	Certificates	
Russia	Certificates Materials book YAC balloons (Taiwan) Stickers (Taiwan)	Krasnoyarsk News
Korea	*Banners* *Materials book (ISBN 89-5708-112-7)* *Certificates* *Stickers*	*Local television (www.ikbc.net)*
South Africa	Materials book Certificates Posters Stickers (Taiwan)	Press release SASOL Science Festival

The idea to promote chemistry by YACs was carried out in a variety of ways. During all events the participating students took up their tasks seriously and enthusiastically. They decorated venues with specially designed posters or with the winning posters of our poster competitions. At the end of many events we enjoyed yelling, singing and dancing. Representatives from the schools and many partner organizations attended the grand finales of our YAC happenings to add official flavour to the event.

We were thrilled to see newspaper articles, television reports and press releases sent out. Making the most of opportunities in the local and national media is an important part of raising awareness of Chemistry and Chemistry education.

Prof Wang Keun Lee talking to a reporter of local digital TV station ikbc.net (Gwangju, Korea)

加點創意 化學可以很貼近

Article about YAC in the United Daily News (Taipei, Taiwan)

Reporter of the Liberty Times interviewing three YACs (Yilan, Taiwan)

'Official' jury in Taipei, Taiwan: Gordon Slavin (British Council), Lida Schoen and Sarah Chang (GlaxoSmithKline Taiwan)

Principal and Science teacher of Ntsika High School with her students in Grahamstown, South Africa

12. Acknowledgements

- GlaxoSmithKline;
- National Taiwan Normal University;
- National Science Council, Taiwan, director Dr Fou-Lai Lin;
- British Council, Taipei, director Gordon Slaven, Richard Law, Hsin-Yuan Lai, Iris Hung;
- Chinese Chemical Society, located in Taipei, president Prof Kan-Nan Chen;
- GlaxoSmithKline Taiwan, Human Resource & Corporate Affairs Director Deborah Hsu, Rosa Chang;
- ESSARP, the English Speaking Scholastic Association of the River Plate, director Dr Cristina Banfi;
- Fundacion Espacios Verdes (Japanese Gardens), managing director Horacio Kagami;
- Municipal Educational 'Centre of additional education N^{o} 1', Krasnoyarsk;
- Local Education Authority in Krasnoyarsk, Russia;
- British Council Moscow;
- Korean Chemical Society;

- National Chonnam Normal University in Gwangju, Korea, (Prof Wang Keun Lee);
- Jeollanamdo Office of Education, Gwangju, Korea
- British Council, Seoul, director Gavin Anderson;
- SASOL Science Festival (Scifest), director Brian Wilmot;
- South African Chemical Institute (Dr. Mike Booth);
- RADMASTE Centre (Prof. John Bradley);
- Rhodes University, Education Department, director Prof George Euvrard;
- Cognis Taiwan, Argentina, Russia, Korea and South Africa;
- BioRad, Life Science Education, for donating five 'Genes in a bottle kit's;
- Central Laboratory of the Research Councils (UK);
- Roche Switzerland;
- University of Cambridge, International Examinations.

Winner of the BioRad prize in Grahamstown, South Africa

13. Spin off

During the project smaller YAC courses/events were organized in Bulgaria (Plovdiv, Sofia), Egypt (Alexandria), Jordan (Tafila), Korea (with Korean teachers during 19ICCE), Taiwan (Yilan) and Lithuania (Vilnius) with support of many different sponsors.

A special mention for Taiwan. In August 2006 the Ministry of Education (MOE) facilitated a new two day meeting in Yilan. 12 new teachers learned about YAC. The next day around 30 students with their teachers ran the event in front of the biggest Department Store in town. The enthusiastic students and teachers showed how wonderful chemistry can be. Our roving student reporters interviewed the public and they were interviewed by the press! The Yilan Liberty Times covered the event!

This was a real success, after parents who wanted the guarantee from the school that no explosions (the public image of chemistry!) would harm their children and the manager of the store that first refused to host the event. After a lot of discussions he agreed and even ended with the presentation of the prizes to the students. Well done Yilan students and teachers!

YACs in Yilan before the beautiful YAC banner

14. Conclusions

The YAC project has been a success. Thousands of students, teachers, parents and passing public (either invited or by chance) in many countries have been exposed to the 'good' side of chemistry, young students showing easy to produce instructive models and producing everyday-life products, that nearly everybody uses.

Local ownership proved to be essential for a successful course/event.

Our next job is to make YAC sustainable and self supporting in the visited and new countries. We collected many data that can help and we need to collect more.

The main thing now is to find new sponsors to carry on.

15. Future

For the next 6 months the YAC team got new invitations from Jordan, Qatar, Saudi Arabia, Yemen, Oman, Taiwan and Pakistan.

16a. Publications about YAC

1. Lida Schoen, Keith Kelly, Young Ambassadors for Chemistry in Taiwan, in *Chemistry International*, March/April 2005 (www.iupac.org/publications/ci/2005/2702/pp2_2003-055-1-050.html)
2. Lida Schoen, Keith Kelly, Young Ambassadors for Chemistry in Krasnoyarsk, in *Chemistry International*, March/April 2006 (www.iupac.org/publications/ci/2006/2802/pp2_2003-055-1-050.html)
3. Lida Schoen, Keith Kelly, Young Ambassadors for Chemistry in Korea, in *Chemistry International*, Sept/Oct 2006 (www.iupac.org/publications/ci/2006/2805/pp6_2003-055-1-050.html)
4. Lida Schoen, Science Across the World in the Yilan province in Taiwan, feature on the *Science Across the World website* April 2007 (www.scienceacross.org/index.cfm?fuseaction=content.showcontent&node=655)
5. Lida Schoen, Keith Kelly, Young Ambassadors for Chemistry in South Africa, in *Chemistry International*, July/Aug 2007 (in the press)

16b. Publications about the poster competitions

6. Lida Schoen, 'It's a Chemical World', The Overwhelming Success of A Poster Competition, in *Chemistry International*, Nov/Dec 2003 (www.iupac.org/publications/ci/2003/2506/1_schoen.html)
7. C.H. Do, in *ChemWorld*, Vol. 47, No. 1, pp 76-77 (2007) *(in Korean)*
8. C.H. Do, in *Chemical Education*, Vol. 34, No. 1, pp 6-9 (2007) *(in Korean)*
9. Lida Schoen, 'Chemistry According to Kids', in *Chemistry International*, Jan/Feb 2007 (www.iupac.org/publications/ci/2007/2901/1_schoen.html)