

The Role of IASE Women in Developing Statistics Education

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1. Introduction

There is no doubt that statistics education is a field with a strong presence of women, which reflects women's intrinsic interest towards children and young people's full development, including the growth of knowledge and capacity. In this paper we are trying to describe relevant contributions of women to the International Association for Statistical Education (IASE) development and activities as well as to statistics education as a whole. Data are taken from 95 responses to an electronic survey that was sent to 188 IASE women in October 2002 as well as from some historical documents about the IASE history.

Respondents included women of 32 different nationalities in an age range of 29 to 65. The sample contained 4 founding members of IASE and the average time in IASE was about 5 years (4.95 years). 93 respondents had experience in teaching statistics, 59 at University level, 27 both at pre-university and university level.

Main research fields in statistics education mentioned were teaching approaches, students' learning, thinking or reasoning; assessment and evaluation, use of computers and technology, including the Internet to teach statistics, research methods, theoretical frameworks and learning theories.

2. Management responsibility

We never applied "participation quotas" in our directive bodies, and, it is however symptomatic that half the IASE presidents were women (A. Hawkins, M. G. Ottaviani and C. Batanero). Moreover A. Hawkins, M. J. Laurent-Duhamel, K. Vännman were 3 out of the 8 members of the ISI Education committee in the period that preceded the creation of the IASE. M. Regier was Chair of the *ad hoc* Committee appointed by ISI to prepare the proposal for the creation of IASE, the other women in the Committee being: M. J. Laurent-Duhamel and D. Lievesley.

After IASE was established in 1991, in the successive Committees different women took a main role: C. Batanero (Vicepresident 1997-99; President Elect 1999-2001, President 2001-03); C. Blumberg (Vicepresident 2001-03); G. Burrill (Co-opted member 2001-03); L. Cordani (Vicepresident 2001-03); J. Garfield (Vicepresident 1997-2001); A. Hawkins (Interin Committee 1991-93, President-Elect 1993-95, President 1995-97); M. J. Laurent-Duhamel (Interin Committee 1991-93); T. R. Lee (Co-opted member 1999-2001); A. Morin (Vicepresident 1993-95); D. North (Co-opted member 2001-03); M. G. Ottaviani (President Elect, 1995-97, President 1997-1999, Co-opted member 1999-2001); M. Regier (Interin Committee, 1991-1993); G. Schuyten (Vicepresident 1999-2003); S. Starkings (Co-opted member 1999-2001, Vicepresident 2001-03); K. Vännman (Interin Committee, 1991-1993). This proportion of women on the IASE Exec Committee was increasing so that on the current Exec Committee there are only 3 men from a total of 11 members and G. Schuyten will be the President Elect for the period 2003-2005.

The sample contained also 20 women taking leading roles in international institutions, including ISI and ISI Committees and Sections. Moreover, in the past years women are increasingly

taking a leading role in educational institutions. In fact we also found 2 Heads of Departments, 1 Head of Section in a National Statistics Office, 1 Vice Dean in a Faculty of Statistics, 1 Head of a Statistics Unit at a Research Institute, 1 Head of Biostatistics School, 1 Executive director in a Multimedia centre, and other women chaired or were members of executive committees in statistical, mathematical or educational societies or in education or scientific committees.

3. Main contributions to statistics education conferences

One main IASE activity is organising the ICOTS (International Conferences for the Teaching of Statistics). These conferences were started by the ISI which appointed a Task Force on International Conferences in Statistical education, whose second leader was K. Vännmann in 1990, with A. Morin being a member of the task force.

Many women were session organisers at ICOTS-4 (Marrakesh, 1994) and ICOTS-5 (Singapore, 1998). Women had a main role at ICOTS 6 as Chair (M. G. Ottaviani), Chair of Local Organising Committee (D. North), Topic Convenors (C. Batanero, C. Blumberg, J. Garfield, H. MacGillivray, G. Schuyten, J. Watson) and the majority of Local Organisers (J. Galpin, L. Haines, D. North). It is also important to mention a total of 25 sessions organised by or with the cooperation of women out of 62 and 93 invited papers out of 240 authorized by women, including two plenary keynotes (M.G. Ottaviani and J. Watson). C. Batanero, L. Cordani, B. Chance and S. Starkings will be taking part in the IPC Exec for ICOTS-7, 2006.

The organisation of Statistics Education invited paper meetings within the ISI Scientific Biennial Sessions has also become an important activity for the IASE. A. Morin, M. G. Ottaviani and G. Schuyten have proved skilled representatives of the IASE within the Programme Coordinating Committee respectively of 50°, 51°, 52°, 54° ISI Session. Many other IASE women contributed to the organisation of Invited Paper Meetings at ISI Sessions or as Invited Speakers and reactors.

We should also mention the fact that three ISI/ IASE Conferences were organised by women: ISI RTC on Training Teachers to teach statistics (A. Hawkins, 1992), IASE RTC on the Role of Technology in Research in Statistics Education (J. Garfield & G. Burrill, 1996), IASE RTC on Training Researchers in the Use of Statistics (C. Batanero, 2000). Moreover the next IASE RTC on Curricular Development in Statistics is being organised by G. Burrill.

Other IASE women took part in the Scientific or Local Organising Committees for the following conferences: IASE Satellite Conference, Berlin, 2003; Seoul, 2001; Presta /IASE Conference, Florianópolis, Brazil, 1999; Interamerican Statistics Education Conference, Buenos Aires, Argentina, 2002, 27 Conferencia de la Sociedad Española de Estadística, Lérida, Spain, 2003, ICME-9 (Tokyo, 2000), PME stochastic working group (from 1997 to 2003), Jornadas de Classificação e Análise de Dados, Lisbon, 2000, European Meeting on Mathematical Psychology, Lisbon, 2001, CERME working group (Bellaria, Italy, 2003), IX IASI Seminar, 2003, CLATSE IV, and V, Mathematical Psychology Society, and National Statistical Conferences, such as the Argentina, ASA, Brazilian, New Zealand or Royal Statistical Societies, where sometimes they organised or promoted statistics education sections.

As regards personal presentations, opening or plenary lectures in national or international conferences were given in countries such as Argentina, Australia, Brazil, Canada, Chile, Iran, Jordan, Mexico, New Zealand, Portugal, Spain, South- Africa, United Kingdom and the USA. A large number of other invited lectures, participation in panels, invited papers or workshops were also mentioned in the responses to the survey.

4. Editing and publishing statistics education books and journals

As suggested by Vere-Jones (1997) in the period preceding the creation of the IASE, the main vehicle for dissemination of statistics education information was the *International Statistical Education Newsletter* (ISEN), with M. Regier as editor. The IASE Review, edited by the IASE President (women for 6 years) continued this work and, at the same time, we started to contribute

with IASE pages to the ISI Newsletter (editors included A. Hawkins, J. Garfield, S. Starkings) and IASE matters in Teaching Statistics (editors included A. Hawkins, J. Garfield, C. Batanero and G. Schuyten).

Since its very beginning IASE members were convinced of the interest to improve statistics education research and as consequence the *International Study Group for Research on Learning Probability and Statistics* was started in 1982. One of the leaders of this group was J. Garfield who in 1988 conceived a *Newsletter* (ISGN), initially in a printed version and electronic from 1996, when C. Batanero became editor.

After four years of electronic editions (now available at <http://www.ugr.es/~iase/isg.html>) ISGN became an IASE publication and was changed into *Statistical Education Research Newsletter* SERN to serve the aim of distributing information about research in statistics education better (SERN is available at <http://www.ugr.es/~batanero/sergroup.htm>). C. Batanero, J. Garfield and M. G. Ottaviani were editor and associate editors until the new transformation in the *Statistics Education Research Journal* (SERJ, <http://fehps.une.edu.au/serj>) in 2002, a refereed research journal that is also endorsed by the ISI, with F. Jolliffe and C. Batanero as editors, C. Reading maintaining the web page and doing the final production, C. Reading, M. G. Ottaviani, A. Morin and J. Garfield helping as associated editors.

Other IASE women have been in the editorial board of Journal of Statistics Education or other educations journals, or have authorized statistics books, students textbooks, papers and other materials. In other cases they helped develop curricular materials for children, developed multimedia distance learning packages or took part in committees in charge of revising the curriculum.

It is also worthwhile mentioning C. Blumberg who recently took over the reorganisation of the World Numeracy Project. This was previously an ISI Committee chaired by L. Biggieri and recently the ISI considered that the project should be run under the IASE responsibility, since this is the ISI section best in line with its objective. C. Blumberg, who spent part of her sabbatical in 2002 preparing different proposals and projects, has set up a Committee and organised a series of web pages for the International Statistical Literacy Project) with a number of people being responsible for different subtopics (main page at <http://course1.winona.edu/cblumberg/islplist.htm>).

5. Responsibility in supervising research

Several respondents were responsible for research projects at their Universities or centres with a number of funded projects in statistics education ranging from 1 to 7. A total of 35 women led research projects in Statistics Education, 23 supervised doctoral thesis in Stat. Ed. and 19 were responsible for aspects of a doctoral or Master's programme in which it is possible to do a thesis in statistics education.

6. International cooperation in statistics education

Taking part in co-operation activities with developing or developed countries related to statistics education has been done by 26 respondents (27,4%). European or International Research programmes were mentioned that involved short study visits of students and researchers. This is complemented with cooperation in teaching at an international level in Intercampus and Tempus-Phare European projects or as a visiting professor in foreign universities.

In other cases IASE women took part in non government organisation cooperation projects (NGO projects) with the specific purpose of increasing the human capital in countries that had recently underwent a war or other disaster. Another way of cooperation is supervising young foreign students who are doing a thesis or helping them to get a grant to continue their studies. Delivering materials free of cost by Internet is also seen as a major way of collaboration and some IASE women have contributed to the creation of statistics education web servers. Finally some respondents have been invited to give courses or workshops in foreign countries, helping in this way to spread statistics education interest and knowledge.

7. Main causes of success

A final set of questions was intended to evaluate the main causes of success for these women. The factors that received more attention were by order: Family support from parents, husbands and children (16 out of 95); Personal interest and effort (13 out of 95); Initial training (12 out of 95); Post graduate or continuous training (8 women considered most relevant the doctoral degree); Belonging to IASE or other institutions (8 out of 95); Attending statistics education conferences (7 out of 95) and Support from colleagues (5 out of 95).

8. Conclusion

The presence and contribution of women as the IASE's brain, heart and hands is the norm, instead of an exception. In the previous paragraphs we briefly described their contribution to leadership, research and international co-operation. We are proud to recognise here their strength hard work, intelligence, management capacity, empathy, illusion, energy, synergy and solidarity.

We were lucky to have been elected to represent the IASE for a given period. Our election did not take into account our gender; we just were the best choice at a specific moment, taking into account the overall IASE policies and development plans. We are very grateful to have been given this chance, and we are conscious that many other IASE members might also have performed our role very well.

In particular we feel proud to represent IASE women from whom we are not "atypical cases" but real representative values as our survey bears out. Many of them have shown their willingness to be speakers in IASE future conferences (74.6%); or help in editing IASE publications (64.8%). But the percentage of those willing to actively participate in IASE life and to commit themselves to the association (49.3%) and to the organization of IASE meetings (47.9%) is also important. We hope young women that now are increasingly entering the IASE might also contribute to future developments in our association.

REFERENCE

Vere-Jones, D. (1997). The coming age of statistical education. *International Statistical Review*, 63(1), 3-23.

RESUME

Nous présentons les résultats d'une recherche historique ayant pour but de mettre en évidence les contributions des femmes au développement de l'AIES. Par ailleurs, une enquête par questionnaire montre la situation actuelle tout en analysant les activités des femmes qui sont membres de l'association et leur disponibilité à s'engager dans la vie présente et future de l'AIES.