

FORGING THE FUTURE FOR QUEBEC WOMEN ENGINEERS

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Abstract

In August 1991, l'Ordre des ingénieurs du Québec (The Québec Order of Professional Engineers- OIQ) created a taskforce to investigate reasons for its limited female membership. This taskforce recommended the creation of a committee "Femmes en ingénierie" (Women in engineering - FEI) to promote the engineering profession to women and to create communication channels among those women having already joined the profession. This committee was formed in 1993, from a mandate and an action plan established by the taskforce. It was assigned 7 members, six women and one man, in most instances, representing the educational, public and private sectors. Although the committee is now 7 years old, it is still building grounds to be in a position to recommend an action policy to the OIQ executive board. The following paper will review the committee's evolution and the pertinence of the orientations taken. This information should be useful to any other group pursuing the creation of a similar committee.

Over the past 7 years, the FEI committee undertook several projects aimed at promoting the profession of engineering to women and at enhancing the profession of women engineers in Québec. From 1991 to 1992, the orientations and goals of the committee were established. In the mean time, the OIQ supported the committee by developing publicity material for young women students at the secondary and college levels. Since 1995, the committee has been testing different forms of mentor program to establish grounds for a more personal form of support for women engineers. The committee conducted three (3) surveys, since 1995. These surveys were used to justify the activities of the FEI committee, to identify key problem areas faced by female OIQ members, and as compared to male OIQ members and to establish reasons for the persistence of these problems. The committee hopes to use these survey results as solid grounds to recommend an action plan to the OIQ executive board. Also, the FEI committee carried out some promotional activities for young women students, in collaboration with several Quebec groups. Since 1998, the committee has shared its work provincially, by organising an information day for the 15 OIQ regional boards. Finally, the committee is very active in maintaining a list of engineering women models capable of serving as guest speaker or resource persons and worthy of recognition prizes.

1. Introduction - The Evolution of the Committee

In 1991, the Ordre des ingénieurs du Québec (OIQ) was observing that its female membership was limited and very slow to evolve. The membership had increased from 0.1% in 1969 to 5.0% in 1990. The OIQ therefore created a taskforce in August 1991, to study the situation and this taskforce recommended the formation of a permanent committee. In 1993, the OIQ formed the committee "Femmes en ingénierie" (Women in engineering- FEI). Still today, and after taking part in many successful activities, the FEI committee is still evolving and seeking a more important role in the policy statements of the OIQ. In the meantime, the OIQ female membership reached 7.6% in 1995 and stands at 9.5% in 1999.

1.1 The Mandate and Action Plan

The 1991 taskforce carved the way for the FEI committee. In 1993, the OIQ formed the committee and gave it the following mandate:

- 1) favour the emergence of communication channels between all women engineer and women student in engineering;
- 2) advise and inform its executive board, of internal and external matters related to women in engineering;
- 3) insure a follow up to its approved actions related to women in engineering.

It also established the FEI committee's first action plan, after one year of reflection. Presented in 1992, this action plan encompassed the following activities:

- 1) represent the OIQ on the CCPE work force created to favour the equality of sexes and take part in the CCPE activities pertaining to women in engineering;
- 2) at all educational levels, foster some promotional programs to promote engineering to women students;
- 3) identify and provide a list of exceptional women engineers to serve as models;
- 4) facilitate the creation of communication channels for women in engineering.;
- 5) keep the OIQ members informed of the activities carried out by the committee;
- 6) carry out a survey describing the psycho-social profile of women OIQ members.

1.2 The Committee Membership

The FEI committee was given a provincial mandate, based on the structure of the OIQ. The OIQ has a provincial office running its main activities. But, it also has a volunteer executive board in each one of its 15 regions. The regional groups are allowed a budget to carry out promotional activities and services at a local level. These are the groups having a direct contact with members and the general public.

The FEI committee has been composed of 7 members, six women and one man, in most instances, representing the educational, public and private sector. The original 1993 membership carried the committee until 1997. In 1998, the committee was revamped and most of its members were replaced, as the original members retired from having served their term. At that time, the committee acquired the membership of Dr. Claire Deschênes, NSERC chair for the Province of Québec. Her collaboration has been precious, and the committee took advantage of her presence to further many of its causes. The 1998 committee also benefits from the membership of an outsider, Dr. Khatoune Témisjian, a sociologist from l'Université de Montréal. Dr. Témisjian has been helpful in analysing the results of the 1997 and 2000 surveys. Over the years, the FEI committee has recognised that its capabilities were limited but that it could acquire strength and resources by collaborating with other groups such as the provincial NSERC and École Polytechnique Chairs for women in engineering.

1.3 The Evolution of the Committee

With this action plan, the FEI committee proceeded with several activities contributing to its learning and identifying some of the key areas requiring input. A representative took part in all CCPE taskforce created in 1995 to insure the equitable treatment of women engineers. This taskforce was created to solve the problem of poor women representation on the executive board and committees of the CCPE. This CCPE taskforce was dissolved in 1999 and no other action took place, except for a weekend workshop in January 2000, to come up with a policy statement for CCPE, on women in engineering. Another FEI member participated in a Québec workgroup representing the female membership of all professional associations and attempting to identify some of the common problems encountered by the female membership. This workgroup was dissolved after one year, because of the diversity of problems among professions and the slowness of the committee to find common goals. The FEI committee also met with several players involved in the educational system and identified some of the key issues in promoting engineering to young women students.

In 1994, communication channels were created between the OIQ regional groups through a telephone conference. This action aimed at fostering more activities at the regional level. Although this technique worked, the FEI committee decided in 1998 to organise a more direct form of link, rather an annually one-day meeting with one representative of each regional groups. This day has been held on a Saturday in November and has always featured one or two key speakers. By updating continuously a list of outstanding and model women engineers, the committee has always been in a position to recommend female OIQ members to groups recognising women through awards. In 2000, for example, the Montréal region YWCA presented an award to Julie Payette, Canadian astronaut for NASA, and Dr. Marie Bernard, founder of the École polytechnique chair for women in engineering. Finally, the committee has used the monthly OIQ magazine to inform all members of its activities.

2. The Mentor Program

In 1996, the committee introduced a mentor program and encouraged its testing in one region of the province. A brochure was produced to provide guidelines on how to proceed and suggestions on what works and what does not work. This program was designed to provide personal support to women OIQ members, by linking them with another more experienced OIQ member acting as mentor. This mentor program differed from that of the "parainage" program required by all new or senior engineers, before joining the OIQ, to gain further insight in ethics and professional responsibilities. The Québec city region was used to launch this mentor program during the winter of 1996. The program never really got underway, because of the time and energy required to promote the initiative and to link mentors with members. Such programs have been launched successfully in universities to introduce students to the profession by linking them with one person already working. But, a full-time and qualified staff member supports these programs and some universities have even reported hiring a second staff member as a result of a successful program.

In February 2000, the FEI committee reconsidered this mentor program by testing a different approach. The new approach was based on link groups "réseaux" organised to create some dynamics between a limited number of persons. The program consists in forming a group of 5 to 6 persons with a common interest (ex. women engineers). The group meets once a month, at a convenient time, either over supper, or at lunch time, to discuss all types of problems linked to their work and social life. As opposed to the previous mentor program, using a one to one exchange, this system provides contacts with a greater number of persons and is more likely to bring together people with some affinity for each other. Also, this form of exchange is less personal and intimidating. A member of the FEI committee is presently testing the program, on an informal basis. An information brochure will be produced from this test, to help regional organisations of the OIQ initiate such link groups.

3. The Surveys

In 1995, the FEI committee conducted a survey to measure the need for the promotion of engineering to women and to evaluate the adequacy of its objectives, versus the expectations of the female OIQ membership. This survey highlighted the fact that only 7.6% of the OIQ membership was feminine while 52% of the Québec population was made up of women. The survey was sent to 3 150 female OIQ members of which 320 responded. The survey questioned the OIQ female membership concerning aspects of:

- 1) the limited female membership of the OIQ;
- 2) promotional strategies in schools;
- 3) preoccupations of the women engineers in Québec;
- 4) the objectives of the committee and its priorities.

Some 86 and 72% of the respondents felt that activities at the provincial and regional levels, respectively, were essential in promoting engineering to young women. The activities of the FEI committee were well known by the OIQ female members who were married with children, but less well known by the young women OIQ members (less than 25 years of age) and those still unmarried. All the objectives of the committee were evaluated as being pertinent and important. This survey supports the fact that, over the years, the FEI committee has always aroused the interest of the general public anxious to know if equity was improved for women with non-traditional jobs.

Although the 1995 survey results were interesting, they provided little basis for comparison between the female and male membership. In 1997, the committee conducted a new survey to compare the psycho-social situation of the women OIQ members as opposed to that of the men OIQ members. This survey was sent to some 7 000 OIQ members, rather to all women OIQ members and to an equivalent number (based on age) of men OIQ members.

The results of this survey pointed to the persistence of several problems highlighted by comparing the conditions of women to that of their male colleagues, with the same level of experience and education:

- 1) annual salary differences of \$ 2 000 to \$ 5 000 still persist;
- 2) women with the same degree of experience are assigned less responsibilities;
- 3) women who graduated in the 1970's and 1980's, had a family later in life, but those graduating now have their family at the same age; and,
- 4) aspiring young women are exposed to more negative pressures when selecting engineering as a profession.

Nevertheless, the survey did not provide any explanations for the problems highlighted. Thus, the committee acquired some insights into the problems of the women members, but could not develop a remedial action plan. From 1998 to 1999, the FEI committee formed a subgroup to further study the survey data and identify some key areas requiring further investigation. This study has lead to a third survey conducted during the spring of 2000. With the results of this third survey, the FEI committee hope to be able to present the OIQ board with a policy statement.

4. Promotional Activities for Aspiring Students

The FEI committee has always recognised that promoting engineering to aspiring women students was essential in insuring an ever-increasing female membership to the OIQ. Although the female membership of the OIQ grew tremendously, between 1995 and 1998, from 5.0% to 9.0%, it is now staggering. In 1996, a member of the FEI committee organized a meeting with several scientific educational groups, youth magazine editors, and the association of school councillors. From this meeting, the committee concluded that aspiring women students were often faced with negative pressures from their parents and friends. The committee therefore recognised the need to communicate to parents and the general public, the social as well as professional advantages of an engineering career. In 1998 and 1999, The FEI committee therefore collaborated with several public media in publishing books and articles on the engineering profession for women. Examples of such publications are:

- 1) Les Éditions Septembre (Québec City) with the book "Folle du Génie";
- 2) Les Éditions Ma Carrière (Montréal) with an article on women in engineering;
- 3) L'Ordre Professionnel des Conseillers et Conseillères en Orientation du Québec", with a complete magazine supplement on women in sciences and engineering.

In 1999, a collaborative program was initiated with l'École Polytechnique of Montréal and the Marianne Mareshal Chair for Women in Engineering, to promote engineering to young women students aspiring to the profession. OIQ members were invited to host at work and for one day, a college woman student. In 1999-2000, this program provided an opportunity to some 30 young women students. As it involved much time and efforts, the FEI was glad to associate itself with the École Polytechnique and the Marianne Mareshal Chair for Women in Engineering. The final evaluation of this first year trial indicated that only half of the 30 candidates did get to spend a day with a professional engineer. The other half did not carry out the exchange probably because:

- 1) they lost interest, as the meeting date took to long to arrange and went beyond the end of February, the deadline for university applications;
- 2) they were intimidated by the fact that they had to contact the professional engineer themselves;
- 3) they would have felt more comfortable if accompanied by a friend.

The activity will be repeated in the fall and winter of 2000-2001, while modifying the program to increase the rate of success.

5. Communicating with the OIQ Regions

The FEI committee realised, from the start that it was essential to communicate its activities and get the collaboration of the regional groups. In 1995 and 1996, a telephone conference was organised. This activity initiated the creation of regional activities linked to women in engineering. Nevertheless, the impact was short lived because of the short office terms of regional volunteers.

In 1998, the FEI committee favoured a meeting with the regions. This annual meeting allowed the FEI committee members to promote their activities. Guest speakers were also invited to discuss some key and politically hot issues concerning women in engineering. These speakers have always aroused much interest and discussion from the participants. If most of the regional representatives did changed from one year to the next, because of their short office term, at least each one personally learned something about the social aspects of their career. Nevertheless, these regional meetings were helpful in creating links and an exchange of activities between nearby regions.

6. Promotion FEI Activities in the OIQ Magazine

The OIQ publishes monthly, a magazine on engineering activities. The FEI committee has always participated in filling in at least six pages annually. This page contains pictures related to events and activities organised by the committee. It also has statistics on women in engineering, at both the university and professional level. It also has articles relative to problems common to women engineers, such as coping with the family and work, studies conducted on women in engineering and the presentation of women engineer models.

This page is another way of communicating the activities of the FEI committee.

7. Conclusions

The OIQ committee "Femmes en ingénierie" has been active for 7 years. It has learned to successfully carry out its mandate by:

- 1) conducting studies and surveys building grounds for their action plans;
- 2) collaborating with organisations with means, to carry out some of their promotional and communications activities;
- 3) building communication channels for the OIQ female membership.

The FEI committee is working on reaching a final goal, that of being in a position initiate some OIQ policies which would help the status of women engineers in Québec.

Table 1 Evolution of the female OIQ membership

Year	Female membership
1969	0.1%
1980	1.5%
1990	4.3%
1995	7.6%
1997	8,5%
2000	9,2%