

FIRST is a journey, not a destination. While the apparent goal may be to build a robot and enter a competition, the skills and knowledge gained along the way are much more valuable. S.W.A.T. 771 set out to construct a robot, but we ended up constructing ourselves as people, as a team, and as a community. What we learned during the process can be used as a model for other teams that wish to experience similar success. The FIRST experience has expanded beyond our team to benefit our school, our community, the technological community and society in general.

One of the most important skills we have learned throughout the years of our involvement in the FIRST program is effective communication. Build season is a very short, stressful time that really teaches the value of clear and succinct information exchange. Because of the diversity of our team, many members are involved in other activities, providing the additional challenge of coordinating schedules. We have developed a system where at the beginning of meetings, we gather and determine the tasks necessary for the day and assign task leaders, writing everything on the board. This allows people who arrive late to begin work immediately, and people who leave early to communicate what has been accomplished, by checking off their task. For anything that happens outside of the regulated meetings, e-mail updates are promptly sent to team members, teachers and mentors by the captains in order to ensure that everyone is on the same page. We have also learned that everyone's opinion is valuable and should be taken seriously. By respectfully listening to everyone's views, older team members and mentors help develop confidence and communication skills in the younger girls.

Our communication skills have been further developed by showcasing the FIRST program to the rest of our school and community. The captains of the team have made successful presentations about FIRST to the younger students, and expect a swell in membership in the years to come. We have had many successful fundraisers within the school, raising the level of awareness for our program. At our school's open house, the captains and team explained the program and the impact that it has had on the members, as well as showcasing our 2006 robot. The awe of the parents and prospective students was quite evident. The program was also featured in the Spring/Summer 2005 issue of our school's alumni magazine, the Jubilate. The issue was devoted to engineering, a topic brought up because of the school's involvement in FIRST. We were further highlighted in an article in the Ontario Technologist, in an issue that focused on women in technology.

The FIRST program has personally impacted our team members in many ways. The most prevalent impact cited was in the realization of non-traditional careers as not only an option, but an appealing one. In 2003, 25% of our graduates went into science and technology-related degrees, partially as a result of our FIRST participation. This is much higher than the national average for females, which is still less than 20% (from the Canadian Council of Professional Engineers). Some

of our FIRST grads have also come back to mentor us. One such member, Shyra Khosla, has been an amazing example of how our FIRST program really works.

Shyra joined S.W.A.T. in 2003. She was an active member of the team, and was there when we went to nationals that year. She fell in love with the program, and never looked back. In 2004, she moved from St. Mildred's to another school. Her new school, Lorne Park SS, did not have a FIRST team. She decided to start one, and managed to get it up and running for that year. The year after, she was able to return to St. Mildred's and went on to co-captain S.W.A.T. in 2005. She went on to the University of Toronto for mechanical engineering when she graduated. This year, she has come back to mentor our team. This is just one example of how FIRST has impacted our graduates and our team.

To expose more people in our school to the program this year, FIRST was integrated into the grade eleven physics curriculum, an idea initiated by the FIRST team. The girls in the physics class, under the guidance of our team co-captains and our mechanical teacher, helped with the construction of the robot. They learned an amazing amount about the program, about engineering as a career, and about their own capabilities. As Kate Mathers, one of the students, remarked, "I never would have thought about robotics before this, but I'm so glad I learned. Robotics has changed my life." Making the program part of the curriculum has exposed a whole new group of people to the engineering profession, the equipment industry works with, and has truly inspired them.

In an effort to bring technology and the message of gracious professionalism to more people, we have tried to break down the social stereotype that can be associated with robotics. We have also involved younger students. Our team includes students from grades seven through twelve, with the grade sevens also participating in FLL. This gives them a smooth transition from FLL to FRC, implants the idea that robotics is not just for a certain type of person, and also that engineering is a viable profession. This brings a much more diverse group of girls into FIRST.

To further promote participation, we try to make our meetings lighthearted and fun, dispelling the sometimes-intimidating aura of engineering. This lack of rigid structure allows for mistakes to be made, and even embraced by the girls. The themes of collective problem-solving and relevant learning are part of everyday life at St. Mildred's, and have naturally carried over into the FIRST experience. The team members have grown as people an incredible amount this year. In learning to correct their mistakes, ask questions when they do not understand, and communicate well with everyone. They have also gained many technical skills, including mechanical, electrical, and programming.

S.W.A.T. has a very strong partnership with our mentors, sponsors and teachers. Our mentors and teachers were mostly rookies this season, creating challenges for everyone involved. We made it through these challenges with a renewed

vigor and love for the program, as well as with a lot of new friends. Our mentors have taught the team a huge amount about leadership, engineering, and how anyone can be what they want to be. The mentors have also learned a lot from the team, improving their leadership and mentoring skills, as well as giving them hope and inspiration, seeing the girls so involved in engineering. One of our mentors, a Mechanical Engineer, even went far beyond her comfort zone, to learn about the electronics and programming from some of the students.

We are not only a part of our school and geographic communities, but also part of the FIRST community. We have very good relations with other teams. Throughout the past years that we have been involved in FIRST, we have cultivated both working relationships and friendships. As one of our members, Kayla Miele, aptly put it, "Through FIRST, I have created so many phenomenal friendships with people who continually inspire me." In 2004, we hosted a series of four workshops for rookie teams. We have traveled extensively to other schools promoting FIRST, such as Oakville Trafalger SS and Woodlands SS. We have offered help to other teams, and supported rookies in any way possible. We have traded many parts, this year giving globe motors to team 1114, and receiving tread and sprockets in return.

FIRST has also expanded our horizons in quite unexpected ways. This year, for example, one of our team members who had never tried playing basketball before decided to try out for our human player, shooting balls into our robot. She was remarkable at it, and is thinking about trying out for the basketball team next fall. This is in keeping with our goals of creating diverse, well balanced people through participation in FIRST.

Our sponsors this year, as in past years, have donated an incredible amount of time and effort. DANA, one of our large sponsors, sent a mentor over to assist us, as well as donating some money and their facilities. They will be hosting an auto mechanics workshop for the team, and hosting a demonstration of our robot. Branair, another of our sponsors, has played a huge role in fabricating sheet metal parts that could not be made with the facilities at our school. The professional quality of these parts inspires pride in our students, and really shows them what can be done in engineering. We have developed many industry contacts that would not otherwise have been aware of the FIRST program, and turned them into FIRST addicts.

In addition to FIRST robotics, S.W.A.T. has been very involved in Lego League over the years. We have hosted the Halton Regional FLL Competition for the past three seasons. It was the first Canadian FLL tournament. It has been a resounding success each year, and the junior school at SMLS has a thriving Lego League team. Younger members of our FRC team also participate in FLL, to enforce their skills and develop their minds. This creates leadership skills in the older students, and allows the student mentors to help develop confidence and communication skills in the younger girls. The FLL team members also get to

know the older girls, so they are not intimidated when they break into the FRC program.

Throughout our journey from a rookie team to 5-year veterans, S.W.A.T has developed many skills and traits that have made us successful. Success that can be measured by the increase in graduates pursuing technological degrees, the increased complexity of each year's robot and the increase in community involvement. The girls that have been involved in FIRST carry throughout their lives the gracious professionalism that they have learned.