Section 4: Mentors and Members

By Team 1718 – The Fighting Pi
www.fightingpi.org

MENTORS

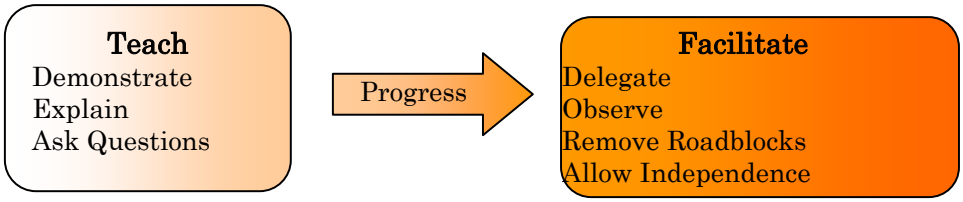
If students are the heart of any successful team, mentors are the mind. They represent the teams' experience and expertise. A mentor is similar to a sports coach (if a sports coach were allowed to participate in the game!) . With the incredibly wide range of topics that FIRST encompasses, a mentor does not have to be an engineer or a teacher. A mentor can be anyone with knowledge or skills to help the team, including someone who handles dinners or arranges for lunches and accommodations at competitions. Every great team has great mentors, and even more great parents.

Don't be afraid to ask the parents of the members for help as well. There is simply too much going on during a season for mentors to keep up with. It's always nice to have people helping out, even if it's only cleaning up the build site and delivering sandwiches for lunch. Never turn down assistance! Insure that potential mentors should understand the level of responsibility they are taking on. Being a full time mentor is a tremendous commitment.

Get on the mentor bandwagon early in the season. It's best to ask for parent help at informational meetings before the beginning of the season. Get those parents involved. Along the way, make sure that the team consults closely with their build location and the students' school. Background checks may be required by some school districts.

MENTOR DEVELOPMENT

Mentors should understand how they should shift their focus throughout the season. At the beginning of a season, a mentor should be a teacher. They need to quickly impart necessary knowledge to new team members. As the season progresses, the mentor should start to become a facilitator. The mentor should still teach, but they should be stepping away from specific tasks and allowing the team members to take on increased ownership and responsibility.



This process of transferring responsibility to the team members can be summed up simply.

- I Do - You Watch
- I Do - You Help
- You - Do I Help
- You - Do I Watch

Perhaps the hardest part of mentoring is understanding when it's important to step back and let the members of the team fail. Mentors usually have the right answer to questions about FIRST; however team 1718 views this competition as a shared responsibility. That means that important decisions need to be made by the team members and on occasion they will be the wrong ones.

The FIRST website is an excellent resource when learning about mentoring. It has a very concise list of mentor responsibilities and roles:

Responsibilities

- *Inspire the students in science and technology*
- *Motivate and engage students in meaningful activities*
- *Create open communication within the team*
- *Facilitate instruction*
- *Maintain process focus*
- *Have the kids do as much work as possible*
- *Establish an environment conducive to open and honest communication*
- *Show trust in, and respect for, every team member and his/her ideas*
- *Encourage kids to take risks and invent*
- *Encourage accountability*

Roles

- *Confidant*
- *Supporter*
- *Coach*
- *Teacher*
- *Motivator*
- *Facilitator*
- *Sustainer*

FOSTERING CREATIVITY

Creativity is a key to success for any FIRST team. Fostering and nurturing that creativity is a difficult task for a mentor. The most successful technique a mentor can learn is to respond to a question with a question. This covers the most basic

"where is this tool located", to the more complex "how should I program this". Teach the team members how to find their own answers, then facilitate them as they succeed!

Mentors should note that creativity doesn't happen without respect. If members are afraid of being judged, mocked, or ridiculed, the creative process will be stifled and uninspired. It's important that mentors practice the treatment all ideas as equal. The ideas should be considered objectively, through the asking of questions. Questions such as "How do you think that idea will improve on what we have?" and "How might that increase our chance to score points?" will more likely result in positive feedback.

Strategy vs. Design

The mentor's input will also be greatly beneficial during the design phase. This is significantly different than the strategy phase, and the difference is important. Early in a team's life, when few team members have experience in FIRST, mentors may play a large role in determining the team's strategy. As the team matures, however, team members should take an increasing part in learning how to evaluate strategies and pick winning ones. Eventually, mentors should allow the team members to create strategies and then help them design and build the robots to complete them.

Students' Roles as Team Members

Students obviously play a key role in FIRST. That role consists of far more than simply building a winning robot. The students on any team will represent many varied levels of development. Some may come in ready and able to handle most mechanical duties. Some may have never handled a tool in their life.

A survey prior to the season to understand each student's strengths and weaknesses is helpful. Teams can ask new members to identify various tools, explain the dangerous points of power tools and answer an essay question on a topic relating to FIRST. This allows the mentors to know who might be good leaders, and what members should be paired with experienced mentors to teach them how to do various tasks.

Of course the role of a student is far more than using tools in the shop. They need to understand all the basic functionality of a robot. For instance, they may not be able to design a potentiometer, but they should at least come away with a basic understanding of what one does.

Creating A Student Driven Team

It is important to remind the members often that the team is their team. After all, the best way to promote student interest and ownership is to let the members make the decisions, makes the mistakes, and own the successes. Any time a mentor volunteers for a task, they should be asking themselves whether or not it's something a student could do.

Along those lines, attempt to make the team a voluntary team and not an involuntary one. Promote volunteering for tasks rather than assigning them. People grow accustomed to having their work assigned, and it is counterproductive when the final goal of a team is independence, ownership, and self-responsibility.

Allow the student captains to do the work of delegation as well. They need to learn the important aspects of leadership. Delegation while monitoring progress (but not interfering!) is critical to their role as captains.

Handling Disagreement

Disagreement happens. In fact, it's worthwhile to address this early on with the entire team. The team members will be working in a high stress environment. A limited schedule, a difficult challenge, and a variety of personalities are certain to create confrontation. This is not limited to the students. Mentors will also disagree with each other. What should be stressed to every single team member and mentor is that everyone on the team is striving for the same thing. Take a step back, realize this is a game, then smile and move on. There is no one right answer in FIRST, and every idea that is thrown away as unworkable by a team will show up on another robot at a competition and be fully functional.

There will also be situations in which members feel they are treated unfairly. This is a wonderful opportunity to allow them to solve their own problems by asking them what they would do if they were in a mentor's position. This will hopefully help them look at the problem from another point of view.

Students Becoming Mentors

A student who graduates and returns as a mentor the next year will face some very difficult challenges. So difficult, in fact, that many teams will not allow graduating members to return for several years to avoid the obvious issues.

The initial problem they are sure to face is one of respect. A mentor is not a student member of a team. However, a student returning as a mentor is sure to have friends on the team that will still consider them a friend, and not a mentor. This can create conflict when the new 'mentor' isn't shown the same respect, obeyed with the same speed, or listened to and given the same amount of consideration as an older mentor might be.

The second is one of maturity. It is a rare individual that is ready to lead a group of high school students having just left that environment. The social issues and emotional investment can lend themselves to a real lack of distance and objectivity. Spend time seriously considering what route a team wants to take with incoming student-mentors.

Effective Communication

Effective communication is a key to team success. Mentors play a major role in establishing an environment conducive to good communication. He or she sets the stage by actively listening to contributions without judging and being conscious of verbal and non-verbal cues.

A mentor also needs to step out of their 'teacher-student' relationship, and step into a partnership. This can be very difficult to do, especially for parents. Don't assign – delegate responsibility. Don't direct – ask questions that lead to the students answering the question themselves. Don't supply solutions – force the team members to think for themselves.

In addition, relearn how to listen! Listen to what the member has to say then paraphrase it back to them to check your understanding of the issue. Ask them what the roadblock or problem might be, and ask them how they think they can solve it. Never be judgmental, and never talk down to the student. Talk to them as you might talk to a co-worker. Listen for the contribution that the team member is trying to make, and thank them for it!