

# Project Specifics

David Banh, Bryan Fleming, Sarah Wise, Kurt Gallagher, Curtis Kobelski and Chris Bengtson

One of the primary components of our Techlab Project is the Techlab Selection Process for future years. The purpose of this project is to provide a simpler and less paper-intensive method for students to be selected by the Techlab directors and placed into the most appropriate Techlab. All the details which were given consideration in the paper version of the Techlab Selection Processes were incorporated into the web based module, in addition to some new statistical information that would be useful for both the directors and the department chairs in tracking class sizes.

## **Method**

After securing the approval of the department chair, the guidance department and the Techlab directors, we immediately began developing the first iteration of the Techlab Selection Module. It simply contained fields that could be filled in by individual candidates and an interface that allowed directors to look at their prospective students and choose whether or not to select them.

We had to stop the selection process at multiple points because of the various demands from the technology department chair, which included by allowing a specialized ladder of privileges to granting him the authority to shift students within Techlabs to better accommodate their projects and the class size capabilities of the school's facilities.

### **Organization of Students**

One of the first problems that we encountered was how to classify the students. There were three primary methods of classification. One was the simple organization by name or student ID. The second was to divide students up by counselor. The last method was the divide students up in terms of their primary, secondary and tertiary Techlab choices.

The third option proved to be the most viable because of the inherent purpose of the lab. Since the Techlab Directors were the people of most consequence to the students, it seemed wise to divide up the students by techlabs.

### **Levels of Privileges**

In order to prevent students from accessing the module as administrators or lab directors, we had to create a variety of access levels to segregate out the different categories participating in this process. These categories were extremely diverse and had a variety of

needs. The “lowest” level of priority was the student, who had rights only to view and modify their data before submitting it and after submitting it, could only view their data and status. This prevented students tampering with the process to favor themselves above other candidates.

The second level of priority was reserved to the Techlab directors. We decided to give this level to the Directors because they dealt primarily with only their individualized laboratories, and thus should not have had the rights to interfere with the decisions of the other directors. The Directors could view the profiles of all students, because it was plausible that any student might eventually come under his auspices. Furthermore, it was beneficial for the Director to be able to view all profiles, not only those in his area of research, because he could then formulate a better overall picture of the quality of the applicants.

However, the Directors could only modify a single aspect of the process, which was whether or not to accept students into their research laboratories. This was sufficient for the Directors and those students who did not become selected moved to another subprocess within the module.

Guidance counselors formed the next group in our scheme. Guidance counselors needed the privileges to view and alter some of the data pertaining to all of their students, which spanned multiple

research labs. Because of this, their level of access was above those of the individual research laboratory directors. Finally, above this came the administration, which consisted primarily of the division chairman and the guidance department chairwoman. Of the two members of this level, only the division chairman played a significant role in module itself. He demanded permission to alter all aspects of selection process, in order to secure the best possible result overall in the selection process.

Finally, we created for ourselves a specialized level. This level allowed us to emulate any of the other levels, for the purposes of debugging and testing. However, if we chose to emulate Techlab directors, we would be unable to accept any students into Techlabs because we did not belong to any specific Techlab. Furthermore, testing of the counselor and administration levels was unnecessary, and these levels were never fully developed for emulation. In the end, that proved to be beneficial, since it prevented the development team from having the rights to make simple, excessive and inappropriate changes to the selection process.

### **Secondary and Tertiary Levels**

One of the inherent problems of the Techlab Selection Module was how to move the students down into their second and third choices if they were not allowed into their first choice lab. The solution was

both simple and complex. We could merely re-run the module with the remaining students and change their second choice to their first. If they were again not selected, we could make their third choice their first. Although the idea behind this method seemed simple, there were still more problems to contend with.

First, there was the loss of data. Although we did not find it particularly important to save the first choice of students, it was a piece of information that was needed for statistical purposes. One of the primary advantages of the web based process was to provide easier statistical feedback, which could not be given if key information was lost. We easily rectified that problem by saving the data about a student's first choice in a separate and untouchable file.

Another, more difficult, problem was how we could allow students to be chosen both for their first and second choices simultaneously. More specifically, if a Techlab director initially refused a student, but after looking at his "second-choices" realized that he would rather have the original student, how could he easily reselect the first student. There was no solution to this that would be good for all parties involved. If we allowed the Director to continue to select students in his first choice, we could be faced with multiple situations where more than one director selected a single student. To prevent this situation from occurring, we instead choose to keep the original plan

and just let Directors choose from the currently available students at the appropriate choice-level.

### **Informing the Public**

Although the Techlab Selection Process plays a significant role in the first part of the Junior Year, it was not obvious to all students that they had to go online and fill out this application. Furthermore, although they risked not getting into their first or second choice labs should they choose to apply late, some students nevertheless needed significant encouragement and reminding to finally fill out their application.

Our public relations committee was in charge of spreading the word to all juniors about signing up for Techlabs. We pasted flyers throughout the school and especially in strategic locations such as Junior Lounge to inform the juniors that the deadline was coming. For students who applied after the dead for no reason whatsoever we gave an earmark of “Late” so that the Techlab Directors could recognize that the student was perhaps less responsible than all his or her other qualities might indicate. By allowing ourselves personal control of who was “late” and who was not, we could deal with individual cases of students who, for a legitimate reason, could not complete the application by the due date.

A few days after the deadline, we spent multiple class periods hunting down delinquent students and sending notices to the counselors. Afterwards, all but a very few select students had successfully completed the application. The great majority of students were able to complete the entire application process without outside help or further reminders. However, a few had difficulty finalizing the application by pressing the completion button. There was also one special exception of a junior student who had already started Techlab *and* had finalized his application. In a quick judgment call, we through out his application and decided that he should work out his arrangements with the director he was already working with.

After the results of the process were finalized, they were pasted again in strategic locations throughout the school. Although the process had always previously disclosed who was in each specific Techlab, Management thought that it would be wise to maintain a semblance of privacy by using student ID numbers.

### **Overall Results**

The Techlab Selection Process was successful in placing students into their optimal Techlabs for the upcoming year. In the end, all students were assigned to a Techlab through a procedure that was at least as rigorous as the paper-based process. Extra statistical information was readily available, including how many students were

placed into their first, second and third choices respectively. The great majority of students were given their first choice placements.

Feedback from the student population reveals that the Techlab Selection Module was relatively easy to use. Lab Directors would have liked more information regarding the courses their prospective students took, and all this feedback will be incorporated into the second iteration of the module

### **Mentorship**

One of the primary aspects of the Techlab Selection Process was placing students who wanted to be selected into Mentorships. Mentorships had always been a subsection of the paper version of the Techlab Selection Process, but they were being overhauled at the same time the paper applications were being phased out, so the specifics of the assignment were constantly changing.

Techlab Directors had the option of recommending their prospective applications for Mentorship. To do this, they had to allow the students into their labs. However, various bugs surfaced especially as students in their second choice labs were being recommended for mentorship. Often, the student and teachers were not well connected and did not know each other, so asking for recommendations was a precarious and difficult task.



### **Special Difficulties**

Because simulation of the Techlab process as a whole can only be performed with an entire class of Jefferson students, it is near impossible to have a second iteration of the module available before the next school year. Furthermore, the lack of student cooperation, namely, in having students complete the application process in a timely fashion without having excessive efforts on the part of the development team.

### **Thank You**

The development team would like to extend our personal thanks to Mr. Joshua Strong, who served both as our personal manager and as the Science and Technology Division Chairman for Thomas Jefferson High School for Science and Technology and to the students of the Class of 2006 who filled in their applications in a timely manner.

## Special Vocabulary

**Development Team:** the Intranet II Module Development Team.

**Division Manager:** the TJHSST Science and Technology Division Chair. Currently Joshua Strong

**Guidance Department:** the counselors at TJHSST

**Guidance Director:** chief of the Guidance Department. Currently Nina Pitkin

**Lab Director:** the teachers running the various research laboratories

**Mentorship:** a corporate-based, outside of school version of the Techlab

**Research Laboratory:** one of the twelve or thirteen specialized facilities at TJHSST used for Techlab projects

**Techlab:** the Senior Year research laboratory