EVENT SCHEDULING USING RESOURCE 25

Interactive Qualifying Project Report completed in
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Abstract

The goal of this project was to research the best method for implementing Resource 25 more effectively. This piece of software aims to undertake complete control of everything related to scheduling, viewing, and searching for events, meetings, and even courses. Our efforts focused on first determining what the students needed, and then combining these requirements with the expectations from the Student Government Association and Administration. We worked to produce an official list of recommendations to present to the Events and Resource 25 Implementation teams to increase usage of the software within the community.

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Chapter 1. Introduction

In corporate cultures, time has a monetary value. People who are efficient with their time are able to get more accomplished, leading to increased income for them or greater profits for the corporate entity.   Business is about the bottom line. Time, although intangible, is a valuable economic commodity in any culture where people strive to accumulate wealth.

The opportunity to make money has long been part of the American dream. The idea that America was a land of opportunity has inspired countless numbers of people to immigrate to the United States. In fact, in 1900, "as the immigrants came down the gangplank into Jersey City they expected the streets to be paved with gold." (Lewis)

The value that making money is important, coupled with the idea that saving time equates to making money, has created a fertile field for the growth of any technology. In turn, this creates the impression that it can save people time or make them more efficient. Naturally, the desire to save time is carried from the business world into homes, schools and just about every aspect of daily life.   With the advent of the affordable personal computer, people began to use sophisticated technology in their homes and schools. As computers have become physically smaller, our dependency on them has increased immensely. Now, the streets of the world are lined with people–young and old–whose cellular phones are more powerful than the early home computers. This newfound

computer-aided efficiency has given birth to a more powerful medium for helping people manage their business and personal lives.

In retrospect, we hoped that these evolving technologies would not ultimately be an overwhelming investment, neither in their cost nor in the time spent learning to use the programs that run them. Further, there was an understanding that any investment would pay off by allowing people to become more organized. Being more organized means being more efficient. In turn, this means making more money at the office or having more personal time for leisurely pursuits at home.

However, the technological road to increased efficiency has not been paved with gold. It appears as though families, who begin to acquire new and more powerful tools for managing their lives, simply take on more tasks. Psychologist Michelle Weil said, "Technology promised us extra time. Well, that didn't come true. We are shorter of time now, busier than we've ever been as a society," (Why so much FAIL in the digital world? - the red tape chronicles - msnbc.com, 2010)

One must also consider the effect technology is having on the quality of relationships. Media such as Disney's Carousel of Progress portrayed yesterdays when a happy home consisted of the family collectively spending time playing games, sitting around the TV, or just enjoying each other's company. Instead of heavily relying on technology for entertainment, families relied on one another. Fast forward to today. It seems that as

family members are introduced to new and different technologies, people start becoming

individually independent within the household. The bonds between family members are

growing further and further apart.

So as schedules fill and overfill, and as people become more isolated, a need arises

for not only increased efficiency in schedule management but also a way to help one

reconnect with others via scheduling.

1.1 Project Description

This project studies and addresses the implementation of the online database

Resource 25, in conjunction with Worcester Polytechnic Institute's (WPI) current system of

event scheduling. When used and implemented effectively, Resource 25 may be used by

members of the WPI community to catalog events happening on campus.

Chapter 2.   Background

2.1 Technology and life

Before modern technological advances, such as smart phones and computers, people were satisfied with accomplishing less. Without personal computers it was normal to spend hours on menial tasks like editing papers; typing on a typewriter and editing papers by hand could take hours. Since unemployment rates have risen from 4.8% in the beginning of 2008, to 10% by the end of 2009, (Bureau of Labor Statistics, 2009) people have been forced to accomplish more work in less time or face losing their job to someone who could. This fierce competition along with the technological tools available today forced many to conform to the mentality of increased efficiency. Spending excess amounts of time on menial things is looked down upon and considered inefficient and unacceptable.

In the past decade, technology has made a difference in aiding the general public to become increasingly better time managers. As a result, it seems as though there is a corresponding increase in the number of items on the average person's schedule. Given the sheer number of items on the perpetual 'to-do' list, if left unmanaged or carelessly managed, there is a likelihood that all of "what's going on" in one's life, business or personal, will get lost in all of the confusion.

In the very recent past, simple email communication allowed for people to have documentation of the plans they had made and the things they were supposed to do. Many programs, such as those produced by Microsoft, Google, and Apple allowed them to check email, keep contacts, and update their calendars simultaneously. Instead of having to call someone to confirm what the plans for the evening were, a person could quickly reference an email. But when one is faced with coordinating the calendars of several people, numerous organizations and a multitude of events, reliance on methods that worked well in the recent past may now prove unreliable.

In an environment of particularly heavy programming where everyone is struggling to remember to keep up on their own calendar and find out what's going on with others, the idea of creating an organizational master calendar—one which streamlines the way that events of interest get planned and publicized—rises to the level of an essential need. This is particularly true for students on today's college campuses. An actively involved student might struggle daily to manage any combination of the following: classes, labs, short- and long-term homework deadlines, student politics, Greek life, social events, family gatherings, personal fitness, household chores and shopping, religious observance, employment, community volunteering and hobbies. The campus itself has to manage staff, schedule classes, find classrooms, provide social meeting space, facilitate extracurricular activities, manage sports teams and ensure adequate parking. The possibility of wasting time by sorting through old emails, searching for events on a social networking site, or missing an

opportunity for something important because the flyer wasn't eye-catching enough is simply not an option in today's fast paced campus or corporate environment.

At WPI, technology continues to be more keenly integrated into everyday life. "Bannerweb" hosts class registration and grades, while essential materials and assignments for classes are generally posted on "myWPI." Emails are sent out frequently from professors, as well as from organizations on campus. WPI recognizes that the effective time managing students of today are the profit enhancing corporate leaders of tomorrow. Further, the campus that controls administrative time through creative use of technology keeps costs down and tuition affordable.

2.2 Technology Reprograms Our Thought Process

Technology use has effectively rewired our neural pathways to think and process information differently (Small, Gary W., 2008). This leads to us becoming dependent on technology and the need of owning the newest technologies becomes a privilege to those who can afford it. Various gadgets help people to become more efficient. With this new found time, the privileged are able to devote more energy to developing and exploring their interests. In business, economic interests invariably press for increased productivity. People turn to technologies to help them keep the same life that is appropriately balanced between work and personal time.

Now, the on-the-go mentality has begun to spread, which gives reasoning behind the fast pace of new technological inventions. This constant stream of new gadgets—promising to change our lives and help to be efficient—creates a feeling of resistance among older generations. This is due to human nature's craving of routines and tradition. We are creatures of habit, and technology is difficult for many to grasp. This creates a feeling of being left behind, perhaps resulting in people becoming increasingly resistant to change.

2.3 Technology and Efficiency at WPI

At WPI, as at any campus, students struggle to balance their class load with basic necessities such as eating, sleeping and exercising. There are two particularly difficult situations faced by students. The first is unique to an institution such as WPI where the curriculum is project-based. Students must sort out ways to meet with and work collaboratively with others. Sometimes, the process of trying to coordinate varied schedules results in decisions by students to forgo the above necessities.

The other situation, much more common to college life, arises at those times when the workload is particularly heavy. Students must acquire or adapt their time management skills. Since students spend countless hours on work outside of class, they soon grow to appreciate tools and approaches that save time. Sometimes, such as during finals, students might need to manage their time by decreasing the number of hours spent on menial tasks

and extracurricular activities. Part of the learning process in college is the becoming organized enough to learn, and managing incoming information is essential to managing time.

On campus, various "technologies" allow students to access information about campus events in different ways: emails, Facebook invitations, mass-produced, printed fliers, or nontechnical means like word of mouth or people table-sitting in the campus center.

2.4 About Resource 25

2.4.1 What is Resource 25?

One might ask, what exactly is Resource 25? It's a piece of software that aims to undertake complete control of everything related to scheduling, viewing, and searching for events, meetings, and even courses. It's marketed to universities and designed to help organize events and available spaces on campus, saving time for the staff and students involved. The school originally purchased a license to the software package when it was being developed by a company named Universal Algorithms Incorporated. By the time WPI decided to attempt the first implementation process, UAI had been purchased by another company called College Net. The new version of the software included both Schedule 25 and Resource 25; the former contained unique algorithms to schedule courses in classrooms, and the latter behaved as a frontend interface along with other functionalities.

In the years since College Net bought the software, it has been revised several times and the company has purchased other components to add in to the software suite. For example, at the end of 2001 the Web Interface was added. This allowed all classes and events to be visible on a webpage, to either a public or private audience (whichever the institution chose, usually based on security concerns). The WebViewer add-on quickly became a major selling point and other universities began using it for the main events calendar on their websites.

2.4.2 How Scheduling Events was Handled

Prior to WPI's use of Resource 25, the method of booking classrooms or events on campus was a very primitive process. One would need to contact a specific coordinator depending on where the desired space was located, and the details of the event were written down on paper. Even when more sophisticated management techniques were employed, like keeping the information in a digital document such as an Excel spreadsheet, this method would still lead to problems since there was no centrally shared or controlled system to coordinate everything. This is why Resource 25 was appealing to WPI; it claimed to be able to organize all of this data as needed.

2.4.3 Event Scheduling & Schedule 25

With Resource 25, the campus was empowered to operate ideally: a student would be able to contact any administrator and request a place and a time that was needed for an event or meeting. The administrator would easily be able to check the system, determine if

the space was available at the desired time, and, if so, schedule the event. If any other

group tried to schedule the same room at the same time it would be clear that the space

was already booked and unavailable. Having all of the events saved on a central server

would also facilitate printing or emailing "Events Updates" notifications if the university

desired.

Before the school used Resource 25, classrooms were currently scheduled through

the Banner software that WPI already used for everything else from grades to financial

records. Banner made sure to use classrooms large enough to seat the number of students

as well as confirmed that there were no conflicts with other courses. Although it had many

advantages, the software did have its limitations as well. For example, it lacked the

functionality to require specific hardware or technology needed by the professor in order to

teach the course effectively, like an overhead projector or recording equipment.

The Schedule 25 software also included in the College Net package was quite

appealing. Schedule 25 offered to replace all of Banner's classroom related functionality

and do even more in a highly configurable and attractive manner.

2.4.4 Previous attempts of using Resource 25

In 2001 WPI made a first attempt of implementing College Net's Resource 25

software package. In 2006 a Computer Science student named Eric Rackliff investigated the

possibility of using Resource 25 for his MQP. Due to many bugs in the system at the time

and College Net's seemingly indifferent attitude in response to WPI's complaints and bug

reports, the implementation of the software was put on hold until College Net agreed to

support it more thoroughly. It was decided that WPI would cut their losses and forget

about the purchased software for the time being so that they could develop their own in-

house system.

Another challenge WPI initially faced was their lack of an events office. Without a

group dedicated to working with the software to integrate it with campus events there

wouldn't be any chance of success. Even if Resource 25 had worked properly, WPI wasn't

ready for it.

2.4.5 Bugs and setbacks

Unfortunately, further implementation after this 2006 MQP attempted by WPI's

Events Team was held back due to the discovery of a handful of critical unexplainable server

bugs that caused the software to be unreliable. Once officially reported to the company,

College Net assured WPI that these would all be fixed in the upcoming patch. When this

release date came a few months later and our school's software was upgraded, the bugs

still existed and prevented Resource 25 from becoming the school's primary scheduling

software once again.

2.5 Resource 25 at WPI

2.5.1 Project Goal

After being presented with the opportunity to collaborate with the Events Office and Resource 25 Implementation Team, it was determined that the best course of action was to ameliorate the existing website to better accommodate SGA's requirements. Although representatives from each group on the project were working toward the same end goal; each group also appeared to want something different than the next. It was our IQP group's job to compile and prioritize all of these requests.

2.5.2 Global problem

At WPI and in common corporate and university environments there exists a problem of determining the optimal method for communication. Some members of the community do not check their email frequently enough, and some simply don't desire the excess amount of emails regarding things that don't concern them. Instead, there could be separate mailing lists for different types of events or updates. This would require every person to filter through them all and sign up for notifications. Countless websites for event tracking are publicly available, but that also raises the issue of getting everyone to sign up and use the same third party site. Such a solution would limit the administrative control needed to maintain a professional looking page with only legitimate, approved events.

2.5.3 Local problem

WPI has decided to resolve this problem by purchasing Resource 25. With one centrally run, in-house system to perform all of these tasks, the university has the option to mandate using it as a primary source to see which events are occurring on campus and where they're taking place. As a community, WPI will be able to facilitate the move from current systems to Resource 25 by being able to modify the structure and display format as needed. This will be much better than the current range of custom built department-specific applications to a staff member's excel spreadsheets used for keeping track of spaces. Once everything is configured to the predilection of the administration, it can begin its gradual ascent toward the end goal of existing as the sole scheduling system on campus.

Chapter 3.   Methodology

The project consisted of identifying both frontend and backend users' problems and needs with the current system. It also required analysis of the events database website (Resource 25) and how to best utilize it, while building a work plan for the entire project. Many meetings were attempted with members of the IT team to gain knowledge about the software's server side so we could improve the overall usability. We also met with Chunk Kornik to learn more about how the software was used and gain further suggestions for areas of improvement.

3.1 Identifying Needs and Wants

Our group met with SGA representative Mark Marchand in order to evaluate what the expectations for this IQP were. Senator Marchand helped us to come up with what SGA believed would be most beneficial to the student body. The current systems in use by the school would be evaluated and a plan for a visually attractive, easy to use and intuitively designed website to manage campus events would be created. Shortly after this we were notified that the school was currently trying to implement Resource 25 again. It was decided that our efforts would best be utilized by focusing on that project. This software already had the backend created for what we needed to do—we just needed to make the user interface more usable.

As we worked toward this goal we encountered several setbacks, one of which was the inability to access the website from off-campus. We investigated the issue and discovered this was intentional and required a user to be connected to a Virtual Private Network (VPN) to use the software. The issue was explained in depth to the appropriate parties, and we would later collect data supporting our proposal by polling the community through myWPI, which we determined to be the best option. Upon thinking about future decisions we would need to make, we used this opportunity to survey the students about other pertinent issues. We worked to create a list of reasons to convince the administration to quickly act on our suggestion to eradicate the necessity of being on the VPN.

3.2 Initial Steps to Solving Resource 25's problems

We initially started researching Resource 25 by examining different schools that were currently using it. We noticed that most schools had chosen a less private approach than WPI and used this in our argument against limiting external access. Different schools had unique ways of adding searching capabilities, using different display formats, having a better category structure, and overall a much more organized site. After making a list of our goals and what exactly we wanted to change, we researched everything in the manuals provided by College Net. For features we couldn't figure out how to implement, we could contact other schools' IT departments directly and inquire as to how they configured a

certain page. Chuck Kornik also proved to be a useful resource with the ability to query a

web-ring of schools using Resource 25 about the questions we had.

To overcome the goal of making the website more aesthetically pleasing we needed

to have access to a Resource 25 emulator or a sandbox environment to work in. We setup a

meeting with an IT staff member to get this installed and quickly learned it wasn't going to

be a trivial task. This goal, previously prioritized near the top of our list, needed to be

pushed aside for the time being, since we were unable to acquire access to any testing

environment.

At the end of B-term we planned to present our research results to the Events Office

and the Resource 25 Implementation Team. Along with our results were suggestions so far

and compelling arguments for ignoring some of the goals in the short term. When our

project was finished we would show a similar presentation to SGA to update them on the

status of Resource 25 being fully implemented. We hoped that these presentations would

enable us to make suggestions to the people who were making the decisions and actually

implementing our plan.

Chapter 4.   Results, Discussion, & Analysis

As our project progressed over the first two terms, we slowly realized we wouldn't be able to have any direct control of the software. This included adding or modifying functionality, or changing any of the visual aspects of a specific webpage. We even struggled to use the existing Resource 25 setup since it was only accessible on campus or through the VPN.

SGA supported our project and provided our IQP team with access to the "myWPI" survey tool.   We worked with our appointed representative, Mark Marchand, to review what SGA thought that the student body needed from our project. We then came up with survey questions to ask the community that would help us along the way. We polled the students on four topics related to analyzing the way events are seen at WPI. MyWPI surveys are typically hosted for a week each, with the results collected on Friday. It was decided to poll the student body during the beginning of B-term in hopes of receiving the highest response rate. This was done in hopes of receiving a higher response rate because the students would be logging onto myWPI more at the beginning of the term to see which of their classes were using the site. It can be assumed that the people who would be using this calendar software would be the ones who went on the computer the most to check their myWPI account and vote on polls. The poll included topics with regard to what the WPI students thought regarding the VPN requirement, current means of finding out about

campus events, any current software calendar usage, and whether or not they've booked

rooms on campus for events before. An overview of the survey questions can be seen in

Appendix B: Survey Questions and **Purpose.**

4.1 MyWPI Poll Results

Polling the student body helped us make important decisions as to the direction of

our work. The results were used to help form arguments supporting our theories and to

learn more about the tendencies of students regarding our project's topic. For

example, Appendix C: Figure 4- Poll Results: VPN Requirement is a screenshot of the survey

results for the VPN requirement question. The results of this question were on track with

what we expected and representative of a good portion of the WPI community with 804

total votes.

Last year, 68% of undergraduate students were using WPI's internet, including all

residence halls as well as some Greek housing. This translates to 32% of the 3356

undergraduates needing to use the VPN (Noble, 2010). Since we only want to look at the

students who the VPN actually effects, we can disregard the 170 who responded to the poll

saying "I use WPI's Internet" because they won't need to use the VPN at all. We can safely

group the 173 students who responded "What's the VPN?" with those that answered

"No". Our assumption is that if someone doesn't know what the VPN is then there's a

minute chance that they will figure out how to use it and successfully connect solely to use the Resource 25 WebViewer website.

By taking these factors into consideration, dropping the students who selected the first option leaves 634 total responses. By combining the "No" and "What's the VPN?" responses, we have a final result of 557 students that will not use the VPN to view campus events and 77 that will. That accounts to just over 12% of the 1074 applicable students that will willingly use the VPN in order to access Resource 25. This result proves that the VPN requirement is just as big an issue as we suspected and it needs to be resolved in order to get students to use Resource 25's website.

To try to remedy this issue, we started looking for the person who made the decision to require VPN for off-campus students. Once we learned who had server access and was able to make such a change, we explained our reasoning and asked if the requirement could be removed. We were told we had to go higher up and it wasn't a simple change because a lot of thought had been put into the decision initially. We met with the members of the Resource 25 Implementation Team and event scheduling staff to learn the reasons behind this decision and convinced them it was a serious issue that needed to be changed. Apparently, the main concern was security: the school didn't want outsiders to know when classes were in progress. More importantly, they wanted the times when buildings were vacant to remain private information. With a little research we were able to prove that all this information was already available on the WPI Registrar's page, so it

wouldn't be hard for someone to determine the times when a classroom was empty if they wanted. An example of the type of information that anyone can gather off of WPI's public website can be seen in Appendix A, Figure 1: An example of the class data already publicly visible on WPI's website. In addition, we pointed out that most other schools using the College Net package had all of their information publicly available, or had a public page and a private page that required valid student credentials to view.

The purpose of the next question was to figure out what the most effective way of notifying students about campus events was. The Resource 25 Implementation Team and SGA also wanted a way of integrating the new system with Social Web, one of the many existing places events can be posted. Social Web is an example of the type of self sustaining website that SGA wanted. This is the type of website where anyone could go to publicize their events regardless of their affiliation with any organization. Social Web was described as a nonviable option for WPI because of its visual design, which is a list view and lacks images—quite similar to Resource 25's default configuration. It also services all of Worcester, meaning that one must sort through a lot of unnecessary information if in pursuit of only WPI specific events.

The members on the Implementation Team were shocked upon seeing the results of this question. They believed it was a primary source for this type of information, so finding out that only 5 people out of 788 total participants used Social Web was interesting (see Appendix C: Figure 5- Poll Results: Find Campus Events). It also led to dropping any

ideas of merging the two websites since it wasn't a valuable use of time and would affect so few students.

In Appendix C, Figure 5- Poll Results: Find Campus Events shows that the overwhelming majority of users—nearly 60%—primarily refer to the "Events Digest" emails sent out every week for campus events updates. This doesn't address the concern of whether they are averse to receiving such emails, and might think of them as useless "spam", but it does show that they are at least being read by most students. By the time Resource 25 is mainstream, all of the information that would normally be in these emails would also be on the WebViewer website. With regards to the flyers on campus and Facebook postings, these would probably continue to exist. Hopefully, the students responsible for the events would also post them on Resource 25 so all audiences could easily check one central location to confirm an event's time or place.

When we posed the question to the community asking students about their personal calendar usage, we had a much higher response rate than the other three questions. Nearly 40% of the undergraduate population responded, perhaps because it appeared first on myWPI and typically required no scrolling down to view. A quick analysis of the results displayed in Appendix C, Figure 6- Poll Results: Calendar Software shows that students at WPI don't generally use the same calendar system as everyone else to organize their lives. Almost 86% of those who use calendars use one of the most common programs such as Outlook, Google, or Apple's iCal. Surprisingly, almost a third of WPI students don't use any

calendar software to track their daily events—a number we expected to be higher considering the inherent technical nature of students who attend WPI. It would be interesting to compare this percentage to another, less technical school to see if a much smaller portion of their community used software based calendars.

We decided against including a survey response for WPI's SharePoint Social Calendar, put forth by SGA. This calendar lacked usability and accessibility, requiring users to log-in in order to view it. Additionally, the website wasn't updated or even used on a regular basis, so waiting for an event to be approved could take too long to make it useful. The advantage that made this solution unique was it had the aesthetics that SGA was looking for, just not the functionality.

By asking students about their calendar usage, we hoped to confirm that the suspected most popular clients were indeed most popular. Gmail and Outlook are both used extensively, and even though iCal wasn't used by as many students, it still supports the feature we needed. Not all calendar software supports importing .vcs files, which Resource 25 was recently configured to provide. These files can be utilized to let users to make a virtual calendar on the WebViewer and export all of the data to their favorite calendar management software. This allows a potential event participant to get a more permanent form of reminders for events that were scheduled through Resource 25, without needing to login every time.

The final question we wished to ask the student body was designed to help us determine what percentage of students would be using Resource 25 after it was completely implemented. We were curious what the most common approach to reserving a room amongst students currently was, so we incorporated this into the same question by varying the possible response options. As seen in Appendix C, Figure 7- Poll Results: Room Reservation, the vast majority of students contacted someone directly rather than submit a request on their own. Arguably, students aren't even aware that they can actually request to schedule spaces on campus without asking a member of the faculty or staff.

To fix this, students and faculty need to change their habits. After the current issues with the implementation are resolved, students can learn how to use Resource 25 during a quick part of new student orientation. An example presentation that could be given can be seen in Appendix D: Sample Resource 25 Presentation Handout. Then, the school could only allow requests through the new system as a way to force students to use it if they needed to schedule an event.

4.2 Sandbox Environment

Our attempts at trying to modify Resource 25 through an emulator failed. Unfortunately, such a tool didn't exist and the only way to make visual changes was to do it live, which was not a viable option because of the delicacy of the program. The other way that we attempted to change the site was to install it on one of our own machines. We encountered many difficulties during this process. One of the most significant issues was

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finding an operating system that was supported since all of our computers had modern

operating systems installed.

After it was finally installed with the assistance of Andrew Stone, we were still

unable to find the WebViewer files to edit. When we asked where they were located, we

realized that the WebViewer was a separate plug-in that had an entirely separate install

procedure. The plug-in wouldn't work with our version of the software and getting a

working copy fully installed would be very challenging. It would have been possible to

make a visual layout in Photoshop but ultimately, this would have made more work for the

Implementation Team when trying to convert our visual layout to code. The time

consuming aspect of this process was making it display properly with Resource 25's internal

scripting language and we couldn't do that without seeing the existing pages' code. We

needed to move on to other important issues and simply add SGA's suggestion for a more

visually appealing website to our official list of recommendations.

4.3 Incoming Meeting Requests

One of our group's goals was to determine if there was a way that incoming meeting

requests could be automatically sorted to request approval from the right person or

department. This wouldn't affect the front end for any students, but it would make the

lives of those responsible for approving requests much easier. Since we hope that the

software is expanded to include most (if not all) of the departments here on campus, more

faculty and staff would need to be responsible for approving or rejecting use of their

spaces. Unfortunately, the current process involves weeding through every request and trying to find ones specific to their department.

We searched through the documentation for Resource 25 and when we found nothing that would help us solve this issue, College Net was contacted for assistance. They confirmed that there was no existing functionality in the software and they would add it to their to-do list. Currently they still claim to be addressing this problem and working on integrating a solution for WPI.

Chapter 5.   Conclusions and Recommendations

After having surveyed the student body and analyzing the results, we concluded that the current version of the Resource 25 scheduling system, although lacking in some useful features, can be successfully utilized to centralize scheduling at WPI. The system can be fully implemented through better organization and sorting, increased ease of use, allowing users to export the data to their own personal calendars, and being able to login from off campus. Below are the detailed recommendations regarding these conclusions.

5.1 Event Request Sorting

We believe that the university does not need to wait for College Net to add any "event request sorting" functionality to proceed with implementation. From our understanding, an email is generated and sent to a group mailbox when a new request is submitted from the WebViewer. Depending on the format of the incoming emails, it would be possible to setup mail filters to parse and automatically forward the request to the appropriate party. This way a professor in the ME department would only get notified when someone requests to use his or her space, and he or she wouldn't have to sort through any master list to determine which request it was. If this system were implemented, we suggest that the main email mailbox should still be monitored in the beginning to confirm that every request was getting approved or denied in a timely manner.

Perhaps an alternate way of sorting the requests in order to send them to the appropriate department or person would be to modify the request page on the site. Checkboxes or radio-buttons are already allowed in this area and another set could be added to specify a specific department if it is known to the end-user. Additionally, checkboxes could be used to specifically request common things like Chartwell's Catering, Lens and Lights equipment, or anything else. If these were set to automatically notify the appropriate people, then students would be able to make requests more easily. Those responsible for providing these resources (such as food or A/V equipment) would have an idea of what was required and could contact the student directly for more information if needed.

5.2 Resource 25 Kiosks

Most of students reserve rooms by contacting someone directly as is seen Appendix C, Figure 7- Poll Results: Room Reservation. Knowing the fact that more than half of the students who answered the survey are booking rooms via direct communication with someone, it is obvious that some of them do not know about that Resource 25 is available. Resource 25 must be seen by students and staff as the only viable way to schedule events. Increased usage can be promoted through better visibility, awareness and convenience. To implement this, we recommend the installation of Resource 25 Kiosks with the sole purpose of accessing the WebViewer on campus. This way, anyone passing by could quickly and easily check out the day's events to see if anything caught their interest.

The definition of "kiosk" according to wiseGeek.com states the following:

> A kiosk terminal is an independent, free-standing, self-service device that is used to provide a service or sell merchandise to customers. Kiosks are usually located in common areas, such as retail stores, shopping malls, banks, and many other public locations. They provide convenience to customers and reduced labor costs for retailers. Convenience and cost are the primary benefits of using one. (Distefano)

This explains that kiosks are meant to provide a convenience to the customers who in our case are WPI students. Having Resource 25 event kiosks would reduce some of the manual processing. The users would have to take two to four steps to access Resource 25: 1. Get to their computer, 2. Start up or log-in, 3. Run a web browser, and 4. Find a link to Resource 25. Not all students wish to carry their laptop around everywhere and would find it very time consuming to obtain access to a computer to simply check an event's location. Having these easily accessible terminals would allow a student to skip some of the otherwise required steps needed to use Resource 25. The kiosks not only provide convenient access for the students but also reduce the amount of work for the staff members approving events. Additionally, if the kiosks are installed and students use them more frequently to schedule events instead of contacting someone directly, the department heads or other staff members that were previously receiving these emails will save valuable time.

Finding the best location to place a Resource 25 kiosk is also an important factor. If

the kiosk is located in an inconvenient place then the students will not use it as much. The

WPI Campus Center already has terminals available for student use on the main floor next

to information desk. These kiosks can be easily used by students who need to check their

email or perform another quick task. This area is a perfect location to install a Resource 25

kiosk since the location is already well-known to have terminals available. It is easier for the

students to remember the location by recognizing a Resource 25 kiosk as part of this area.

The kiosk can run on one of the existing computers with an additional program in

the background to prevent students from using it for other purposes. This would prevent

someone from tying up the computer for an extended period of time when others passing

by only need to quickly reference something from the WebViewer. For this to be

successful, the computer would need to block other websites and programs from being

opened and remove the ability to log off the machine.

5.3 Export Calendar Guidelines

One of the best ways to provide satisfactory usability of the system is to let the

visitor experience something that they do not expect. All visitors have their different

methods of managing their schedules. Some people use calendar software on their

personal computers while others write things down on a piece of paper or even memorize

their schedules. Resource 25 has a feature that mainly targets those people who manage

their schedules on Microsoft Outlook or other common calendar software. The feature

exports selected event information as a "vCalendar File" with the extension VCS. When

users download a VCS file from Resource 25 and imports it into their favorite calendar

software, the program is able to parse the data in the file to pull the selected events'

information. This allows the users to keep track of events on their own calendar. For

example, instead of tracking the events both on Resource 25 and in Microsoft Outlook, the

users are able to manage their schedules with a single piece of software.

There is also an advantage for Google Calendar users when using VCS files. Not only

can these files be imported, but then the calendar data can also be exported to other

formats such as iCal or CSV. This way, any calendar software that doesn't support

importing VCS files will most likely support CSV files because they're a much more common

format. Therefore, having this feature to export VCS files benefits a wide variety of

students with its flexible compatibility between multiple calendar software systems.

Currently, this feature is neither presented nor described to the users anywhere in

Resource 25. That means the website is possibly losing a large portion of students who are

managing their schedules on other calendar software. Thus, our suggestion would be to

create a guideline to assist users in exporting VCS files. The guideline should have

screenshots and a description of the process in a few short sentences. A sample flow for

the guideline can be seen below:

How to export specific events to Outlook calendar:

1. *Make sure you have the event you want to export added to my Reminder.*

2. *Click on the event title. [screenshot of a top page of Resource 25]*

3. *The event information will pop up in a small window. Click on the icon at the top right corner to add the event. [screenshot of a pop-up window that spots out or highlights the icon]*

4. *Now, export the Resource 25 calendar to your personal calendar. Click on the My Reminders tab on top, and then click on the icon next to your calendar title where it says "Click to generate vCalendar file to import into your off-line calendar." [screenshot of the My Reminders page with the mouse pointing on the icon.]*

By having these guidelines, users will be able to learn that such a feature exists and will greatly benefit from its functionality. Through this process, Resource 25 becomes more attractive.

5.4 Pubcookie Security

As discussed above, requiring students to access VPN as a prerequisite to accessing Resource 25 poses a significant problem. This extra step results in a substantial decrease in student usage. Due to the number of required steps to use VPN, it is very inconvenient for users to connect from off campus locations. The purpose of the VPN is to ensure that any private data that might be displayed on the WebViewer is not visible to the public. Other

schools using Resource 25 already publicize their event information, so there's no reason

we shouldn't do the same—at least for events that are open to the public.

One possible solution to eliminating the VPN is to require an active pubcookie for

users not on WPI's intranet. This would entail simply logging in via a generic CCC Login page,

like the ones used for NetReg or SGAvote (see Appendix A, Figure 2: Example login page for

many CCC websites). The pubcookie acts to provide a single sign-on process for all sub-

domains and pages of WPI's website. This will protect WPI's private information just as well

as the VPN, since the same exact credentials are required to logon to the VPN as are to

login to pubcookie. Unlike VPN, which requires launching the application and logging in,

pubcookie can be accessed from anywhere without first installing or launching an

application. Overall, it's more convenient for the user to access Resource 25 using a

pubcookie login instead of the VPN.

If this solution is not viable for any reason, at a bare minimum there needs to be a

warning message on the web that informs the user they need to connect to the

VPN. Currently, the user has no way of knowing this and might think the page is unavailable

because a "Page not found" error is thrown. By having a link that directs the users to an

instructional page for connecting to the VPN, the usability of the webpage is improved.

5.5 Web Site Organization

"Organizing your website's page in a way that visitors find logical and intuitive will help your visitors navigate the site and accomplish their goals." (Napier, 2006) Visitors should be able to navigate the website well so that they can successfully find whatever it is that is being sought. It does not mean simply creating links between pages. To assist viewers with navigating, the project committee recommends that the website designer anticipate where the users will look for things the first time. With that objective in mind, the designer can create the webpage link that corresponds to the anticipated needs of the end user. The overall objective here it is to increase convenience by making the site more user-friendly, thus prompting increased usage.

Currently, there are only two links available to jump to the Resource 25 website. One is located on the calendar page, linked from WPI's main page, and the other one is located at SGA's website. Students would most likely try to find a calendar scheduling page by clicking on Calendars from the homepage. The calendar page isn't clear enough in which link goes to Resource 25, either. As for SGA's website, it does have a footnote that mentions the VPN is required, but it's at the very bottom of the page and the only place any such notice exists.

It is recommended that the current Resource 25 links be moved, or an additional Resource 25 links be added as follows:

1. The link to Resource 25 which says "WPI Campus Events" is available at "Related Sites" which is on the left side of a calendar page on the WPI website as shown in Figure 3: Current calendars page. Since the link is only available on this page, there is no chance of this link getting clicked on when a user is not on the calendar page. In addition, the link is located as subcategory of the calendar page. This positioning of the link is not meant to be clicked by the users. The link should be moved to the center of the page.

2. The "Events Calendar" tab on Appendix A, Figure 3: Current calendars page is linked to a page that lists WPI events powered by Social Web. As we have analyzed from the poll results (Appendix C, Figure 5- Poll Results: Find Campus Events), currently Social Web is not a primary source of event information for students. Since Social Web is not important, the "WPI Campus Events" link from the "Related Sites" tab should be moved higher up and replace the "Events Calendar" link.

Raising awareness regarding Resource 25 will directly correlate to increased usage. Additionally, educating students on how to integrate events with their own calendar, providing convenient on and off campus access, and creating a more sensible, user friendly website will all contribute to students using the software even more. With the increase in use, students and staff will experience a new ease in finding and organizing events, and thus
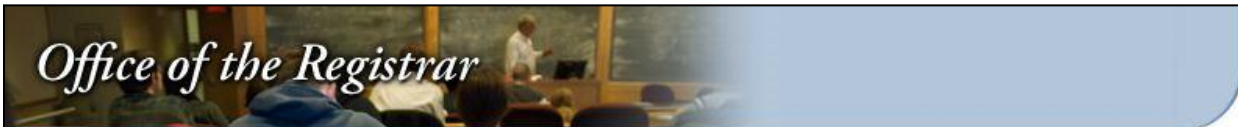
will maximize their use of available technology to manage their time and scheduling

challenges.

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Appendices

Appendix A: Screenshots from wpi.edu

Figure 1: An example of the class data already publicly visible on WPI's website

Figure 2: Example login page for many CCC websites

Figure 3: Current calendars page

Appendix B: Survey Questions and Purpose

Survey Questions & Purpose	
Question	If you are not on WPI's Internet, would you view campus events if it required a VPN?

Answer Selections	● I use WPI's Internet
	   ➢ People who are on-campus and do not require a VPN
	● Yes
	   ➢ People who are willing or don't mind using a VPN
	● No
	   ➢ People who would not use the VPN for this purpose
	● What is the VPN?
	   ➢ People who don't even know what it is won't be using it

Purpose	To identify what portion of the applicable community would connect to WPI's VPN in order to use the campus events website. This was needed to support our argument for removing the VPN requirement.
Question	How do you mainly find out about campus events?
Answer Selections	● Emails/Events Digest ● Social Web ● Facebook ● Flyers on campus ● Word of mouth
Purpose	To identify the primary sources used by students to find out about campus events, other than Resource 25. This statistic was needed to know what the most effective way for announcements events was.
Question	What calendar software do you use to keep track of events?
Answer Selections	● Gmail ● Outlook ● iCal ● Other ● None
Purpose	To determine the most popular calendar software used on campus. We needed to be sure that exporting events would be in a format compatible with at least all of the most common clients.
Question	If you've been responsible for booking a room or scheduling an event on campus, how did you do it?
Answer Selections	● Contacted someone directly ● Submitted a request via WPI website ● Added it to a non-WPI calendar (Social Web, Facebook, etc) ● Added it to calendar run by WPI
Purpose	To identify the most common method for scheduling rooms currently on campus. This could be used in the future as a benchmark to see how well Resource 25 improved the process.

Appendix C: Poll Results
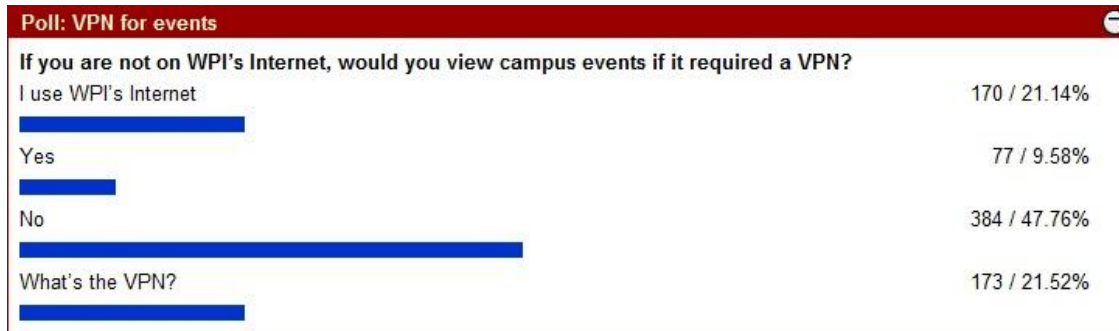
Figure 4- Poll Results: VPN Requirement
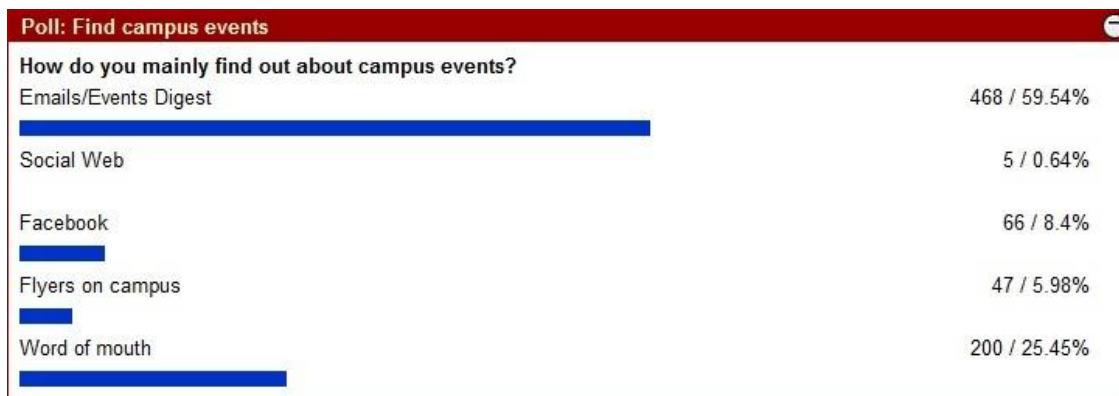
Figure 5- Poll Results: Find Campus Events

Figure 6- Poll Results: Calendar Software

Poll: Room reservation ⊖

If you've ever been responsible for booking a room or scheduling an event on campus, how did you do it?

Contacted someone directly	452 / 64.66%
Submitted a request via WPI website	149 / 21.32%
Added it to a non-WPI calendar (Social Web, Facebook, etc)	39 / 5.58%
Added it to a calendar run by WPI	59 / 8.44%
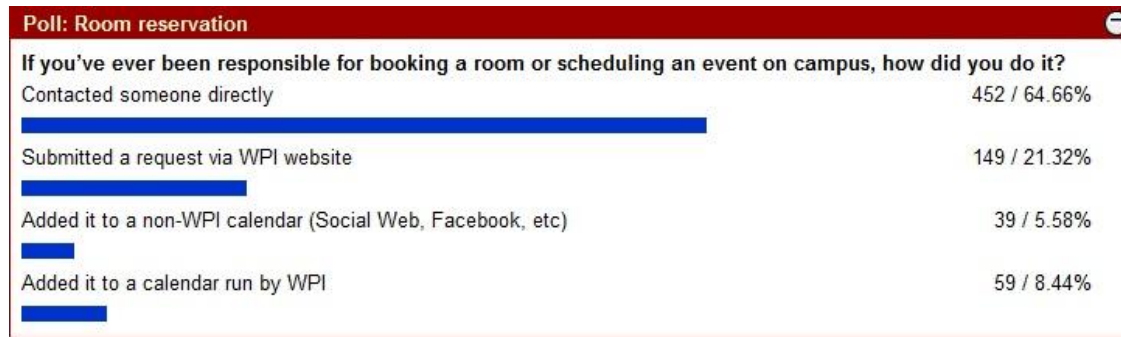
Figure 7- Poll Results: Room Reservation

Appendix D: Sample Resource 25 Presentation Handout

(Cont.) How to Reserve a Room

- Describe how back-end users of R25 expect WPI students to fill Event Request Form out.

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(Cont.) How to Reserve a Room

- Describe how they should select a space preference.

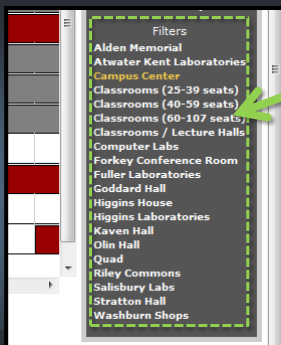- For image use, HTML tags are supported, e.g.

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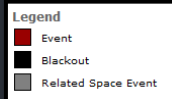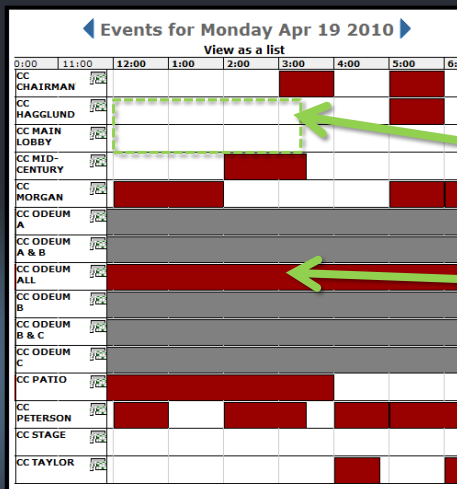
Check Availability of a Room
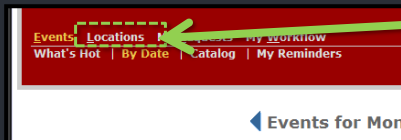
- Click on Locations

- Filter location by Filters at right-hand

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(Cont.) Check Availability of a Room

- Click on the empty space to request an event

- Put mouse cursor on top of an existing event to view the event's title

- Click on the event to view more detail

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