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BETA-TESTING OF ONLINE APPOINTMENT SCHEDULING SOFTWARE IN AN ACADEMIC ENVIRONMENT

An Interactive Qualifying Project

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of the

WORCESTER POLYTECHNIC INSTITUTE

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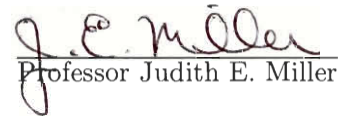
Degree of Bachelor of Science

By

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Abstract

Online appointment scheduling services have been used successfully in fields ranging from small, private businesses to large professional organizations. The goal of this project was to determine if these services could be used successfully in the academic environment. Through the beta-testing of NetAppointment.com for use with scheduling appointments for Academic Advising Day, it was determined that online appointment scheduling is much preferred to previous scheduling methods by both advisors and advisees.

Contents

All project work was equally shared between both partners.

1 Introduction

Every student at WPI has an academic advisor, with whom he must meet at least once a year, during Academic Advising Day ("AAD"). Every student does not have to meet with his advisor exactly on Academic Advising Day, but he is expected to meet with his advisor as close to this day as possible. This has been a serious strain on advisors in the past, as it usually requires many days to schedule all the necessary appointments and work around conflicting schedules. In order to schedule appointments, advisors must find out free time slots from advisees, and use this data to find mutually acceptable free time, and then notify the advisee of the appointment. Many problems can arise during this process. Limiting the number of and amount of time consumed by these problems is the specific task this project aims to complete.

Since their existence, online appointment scheduling software ("OASS") has found uses in fields ranging from small hair salon to large law firms, and has been successful at saving time and reducing confusion. There has never been a published attempt at using online appointment scheduling software in an academic setting. This project will determine whether or not online appointment scheduling services are useful in an academic setting, useful be used to mean reducing confusion and time required.

This project will be testing the effectiveness of using an online appointment scheduling service to limit the amount of time consumed by problems and the confusion that can arise during appointment scheduling for Academic Advising Day.

We will be testing NetAppointment.com with the help of advisors on Academic Advising Day and the days following it. We solicited professors for help through email, and will gather results from both advisors and advisees through email after the experiment is over. By analyzing these results we will meet our objectives.

2   Literature Review

Over the years people have used a variety of methods to organize their appointments and other timed events. They run the gamut from the classical post-it notes and daily diary with handwritten notations to the more modern electronic devices such as Palm Pilots. Different organizational solutions may be better suited for different applications, and so understanding the available options is an important first step in choosing an appropriate method for appointment keeping.

The modern options include software that runs on your computer (called personal information managers – PIMs for short), portable electronic organizers (PDAs, handhelds, and Pocket PCs), and web-based appointment software.

2.1   PIMs:

The current market leaders in PIM software are Microsoft Outlook 2002 and Lotus Organizer 6.0, respectively.

2.1.1   *Microsoft Outlook 2002*

> *"Outlook 2002 is our e-mailer of choice, as long as you're getting the full Office suite.*
> *Don't run it alone, though, especially if you need a beefy PIM."*
> – CNET Review; C/NET Software; http://www.cnet.com

The market leader in PIM software is Microsoft Outlook 2002. It attempts to provide a single, integrated solution for organization and management of email, instant messaging, calendars, notes, contacts, task lists, and scheduled appointments and meetings. Outlook may be used in conjunction with Microsoft Exchange Server to provide a seamless working environment between employees of a company (Microsoft). The benefits of using Outlook are:

- it is an excellent email program;

- it saves group calendars, allowing team members to manage and view personal and team schedules (Microsoft);

- it lets you publish schedules online so that others can see when you are free or busy;

- it automatically synchronizes online calendars when you make changes to your scheduling information; and

- it integrates nicely with other Microsoft Office applications (Word, Excel, etc.) (Microsoft).

Some of the problems with using Microsoft Outlook 2002 as your primary PIM is that it is not loaded with enough features to satisfy the needs of even the intermediate level user. It lacks the sophisticated searching and detailed project scheduling tools of other software (CNET Review;

C/NET Software). This product would not allow people to make appointments with the program user, since it is designed to be a personal organizer and not an appointment maker.

2.1.2 *Lotus Organizer 6.0*

> *"PIM-savvy users will love Organizer's advanced Web capabilities and fat set of extras;*
> *beginners might prefer a simpler PIM...."*
> – CNET Review; C/NET Software; http://www.cnet.com

A close second place in the PIM software market is Lotus Organizer 6.0, which has always been considered a solid information manager. The newest version includes a variety of web features to provide information to interested parties. Organizer's features include:

- automatically publishes web calendars for group planning;

- a slew of other web-related options;

- synchronizes appointment information with PDAs and cell phones for scheduling information continuity;

- tracks phone calls received and placed;

- provides driving directions; and

- prints electronic postage stamps (IBM Lotus Software; http://www.lotus.com.).

However, one very apparent downside to Lotus Organizer 6.0 is that the installation and initial setup process has been described as "needlessly complicated". Further, the wealth of features in the software may overwhelm novice PIM users (CNET Review; C/NET Software). Just like Microsoft Outlook, Organizer would not be a good choice for making appointments with people, because it is designed to be a personal organizer and not an appointment maker.

2.2 Portable Electronic Organizers (PDAs):

Portable electronic organizers (which term includes devices called PDAs, handhelds, and Pocket PCs) are becoming more popular with each passing day. Professionals with very busy daily schedules live their days by what they have scheduled in the organizer. Two of today's top portable electronic organizers include Toshiba's Pocket PC e740 and Palm's Tungsten T. Even though these PDAs make great organizational devices, they are not designed for appointment making with the user. Therefore, they do not make a good choice for this project.

2.2.1 *Toshiba Pocket PC e740*

> *"While the new processor is a bit of a disappointment, this high-powered handheld is*
> *worth the price."*

3

This electronic organizer is packed with all sorts of bells and whistles. In particular, some of the most significant strengths of the Pocket PC e740 include:

- built-in wireless communications conforming to latest standards; and

- multiple expansion slots for add-in hardware (Toshiba America; http://www.toshiba.com).

Despite its many strengths, Toshiba's Pocket PC e740 does have a few weaknesses:

- certain devices within a range of serial numbers are being recalled due to problems with data loss when the batteries die; and

- the new 400 MHz Xscale processor lacks in anticipated performance increases (CNET Review; C/NET Hardware).

2.2.2 *Palm Tungsten T*

"Palm has created a slick and innovative PDA, but it faces serious competition from other attractive, high-end handhelds."

Like earlier models by Palm, the Tungsten T is sleek and elegantly designed, making it a bit of a status symbol. This is Palm's first PDA with a variety of new features, including:

- a fast processor;

- the ability to run brand new software;

- a new space-saving, convertible design;

- built-in stereo sound; and

- built-in "Bluetooth" wireless communications capabilities (Palm.com; http://www.palm.com).

Despite all of the impressive "firsts" incorporated into this handheld, there are several features that are missing:

- no MP3 playback; and

- not all of the PDA's functions can be accessed when the device is in the 'closed' position (CNET Review; C/NET Hardware).

Overall, Palm's Tungsten T is an attractive PDA that performs quite well, even though it is not quite as refined as it should be considering the somewhat hefty price tag (CNET Review; C/NET Hardware).

2.3   Web-Based Appointment Scheduling Software:

Just beginning to make its way into the appointment scheduling scene is web-based appointment making software. Benefits of such a system include:

- easy to understand and use interface;

- easy integration into websites (whether large or small business, individual, school, etc.);

- mobility – being able to access the system on any internet-connected computer; and

- easy to reach out to large audiences by just providing the appropriate 'link'.

All of these reasons are why online appointment scheduling systems are beginning to appear. However, there are several disadvantages to such a setup, including:

- over-simplified interface – not being able to provide more advanced features found in computer-based PIMs and portable electronic organizers due to web-based limitation;

- possible lack of integration into existing computer software;

- possible privacy issues depending upon desired confidentiality of posted information; and

- existence of a regular subscription fee.

Two web-based appointment scheduling systems currently in existence are Net Appointment and AppointmentQuest. While they share some of the advantages and disadvantages common to all online appointment scheduling software, they each have some features and downfalls of particular interest. Overall, Net Appointment is an entry-level system, while AppointmentQuest is much more advanced, containing a lot more options for customization and more advanced features.

2.3.1   *Net Appointment (http://www.netappointment.com)*

The primary features of Net Appointment include:

- appointment scheduling 24 hours a day, 7 days a weeks;

- automatic email reminders;

- selectable fixed appointment intervals;

- possible reduction in employee expenses, due to elimination of employee-customer interaction in order to make an appointment;

- possible increase in customer convenience;

- automatic time zone conversion to local time;

- ability to schedule recurring appointments;

- ability to view scheduled appointments; and

- ability to cancel or reschedule appointments online (Net Appointment; http://www.netappointment.com).

The base rate for using the Net Appointment service is $9.95 per month, with the ability to create additional personnel profiles for $4.95 each. However, the service does provide a 30-day free trial period.

2.3.2 *AppointmentQuest (http://www.appointmentquest.com)*

AppointmentQuest's main advantages include:

- account setup wizard;

- multiple service location support to allow for management of appointments for companies with multiple 'branches';

- appointment reservation/cancellation deadlines requiring customers to make/cancel appointments by specified cutoff dates;

- variable appointment intervals;

- personnel management tools to keep track of employees;

- ability to create customer profiles to provide customized appointment making services to high-priority clients;

- no-show policies to deal with clients who miss appointments;

- data synchronization with Microsoft Outlook and Palm Desktop (for Palm brand portable electronic organizers);

- automatic confirmation emails; and

- easy customization of entire account (AppointmentQuest Online Scheduling Software; http://www.appointmentquest.com).

Several grades of AppointmentQuest membership are available ranging in cost from $9.95 per month to $159.99 per month. This service also provides a 30-day free trial period.

3 Objectives

The goal of this project is to determine if using Netappointment.com online scheduling service as a means of setting up appointments during Academic Advising Day would save time and lessen the amount of confusion among advisors and advisees. Time is wasted and confusion is created when problems arise in the scheduling process. Problems that arise are misinterpretations of meeting times, lack of sufficient advance warning, and forgetfulness.

NetAppointmet.com offers a number of features that will help combat these problems. The interface used by NetAppointment.com is clean and intuitive, and advisees are required to select and time and confirm it before being allowed to make an appointment. In addition, scheduling appointments is limited to a given period of time prior to the appointment, determined by each advisor. It uses a first-come first-serve feature for scheduling appointments that encourages students to sign up for their required appointment as far in advance as possible. Whenever an appointment is successfully made, reminder emails are sent out to both the party and the advisor.

Our ultimate goal is to assess how useful it would be to implement NetAppointment.com for scheduling appointments for Academic Advising Days.

4 Methodology

The objectives of this project have evolved since it was initiated. This change has occurred as a direct result of preparing to perform various tests. The history of this project and the reasons for the changes that were made are stated below.

4.1 Yourpace.com

At the time this project was started, it was an assessment of the yourpace.com scheduling service in an academic environment, for the purpose of scheduling office hour appointments. We would be working closely with one of the developers of yourpace.com, Sri Vandusevan.

Before professors would be using yourpace.com, we had to ascertain whether the service was user-friendly enough and complete enough for professors to reasonably use for our proposed test period of seven weeks. We drafted a series of usecases to describe the actions we expected to be performed by professors and students during the trial period. We then signed up for accounts with yourpace.com, and attempted to follow these usecases, acting as students and professors. Yourpace.com was found to generate errors and produce unexpected results. When we presented our results to Sri, he informed us that the yourpace.com project was incomplete, and the team behind it had since gone on separate paths, but he was still making modifications to the service. We met with and discussed the current state and future of yourpace.com, and from this meeting we decided that yourpace.com was too incomplete to work with as intended.

4.2 Using Other Services in Place of Yourpace.com

With yourpace.com being too incomplete to use for scheduling office hour appointments, we were forced to modify the objectives of the project. The project would now aim to assess the usefulness of using a different online scheduling service in relation to its cost and set up time, for scheduling office hour appointment. We based our criteria for determining if a given online scheduling service could handle our needs on our usecases that we generated for testing yourpace.com. A search of services online yielded two that met our criteria, NetAppointment.com and AppointmentQuest.com, both of which featured free trials. During free trials of both services, we simulated our usecases, and found that both handled our needs. NetAppointment.com was chosen over AppointmentQuest.com because we found it substantially more intuitive.

With a new online scheduling service, we attempted to recruit professors in our respective major departments. We solicited them for help with this letter that was personalized for each professor.

> Professor *(INSERT NAME)*,
>
> We're conducting an IQP to determine whether or not a particular online scheduling service, NetAppointment.com, would be beneficial for professors to use as a tool for setting up appointments with students. It allows students to arrange appointments during times you allocate, after which you will be sent an email by the system stating who made the appointment, and for what time. It places responsibility for arranging

the appointment solely with the student, and requires them to make the appointments in a timely manner. If this is something you'd be interested in trying for B-term this year, please let us know at your convenience, and we'll give you instructions on how to set up your account. If you have any questions or would like to know more about the project, please contact us and we can provide as much information as you need. Thank you for your time and consideration.

Sincerely,

Bill Meola
bmeola@wpi.edu

David Feinzeig
david@wpi.edu

Since we wanted our conclusions to be based on as much data as we could get, we determined that the minimum number of professors participating in our study would be six. We were unable to get this many professors to commit to our test, so we were forced to change our objectives once again, so that we might get as large a sampling size as possible.

4.3   Reducing the Timeframe of Testing

A common complaint among professors was that they did not have to time to commit to a seven week test. We decided that a reduced time requirement would yield a greater participation rate. In addition, we chose to solicit a far larger group, based on the notion that a higher percentage of commitment times a larger solicited group would yield a greater number of participating individuals. And so, we solicited the professors at WPI to try Netappointment.com scheduling services as a means of scheduling their Academic Advising Day appointments with the following bulk e-mail.

At last–an IQP solicitation that will actually save you time! Spaces are limited, so please respond as soon as possible, no later than Friday, January 24, 2003, to reserve your spot!

Are you dreading another year of having to put together your schedule of meetings with all of your advisees for Academic Advising Day? So how should you do it this year? Post a signup sheet on your door? Have all of your advisees email you with available times and try to go through the mental gymnastics of making everyone's times fit? There must be a way to simplify this painstaking process.

Well here is the solution! Participation in our IQP project, which involves beta-testing an online appointment making system, will provide the following time-saving steps/features:

- we will create your account and establish your available blocks of time;
- we will email the link to your advisees and have them sign-up online;
- an automatic email reminder will be sent to advisees, so they can't use the excuse, "I forgot.";

- you will get an easy to read chronological listing of all of your appointments; and

- you will have so much free time you won't know what to do with it!

So, to summarize YOUR time commitment:

total setup time	-10 minutes
time saved from scheduling logistics and missed appointments	+60 minutes
time spent on post-advising day feedback to IQP group	-10 minutes
NET TIME GAIN:	+40 minutes!!

(40 minutes is enough time to eat that lunch you usually miss! Walk your dog before you leave for work! Get to read the morning newspaper for once! Take a nice relaxing bubble bath instead of that usual 2-minute shower!)

If you are interested in simplifying your already busy life by participating in our IQP for scheduling your Academic Advising Day appointments, please respond to this email by Friday, January 24, 2003. We will create your account with the block of available times that you specify. If you have any questions, please feel free to email either david@wpi.edu or bmeola@wpi.edu.

Thank you for your time!

David Feinzeig
Bill Meola

The advisors who participate will have accounts created for them with time slots open that they specify. We will provide them with the following simple, step-by-step instructions for their advisees to follow in order to set up appointments with them through NetAppointment.com. The instructions that were made available to both the students and advisors follow.

FOR STUDENTS: INSTRUCTIONS TO MAKE AN APPOINTMENT AT NETAPPOINTMENT.COM

1. Click on the appropriate advisor link above.

2. Click on the icon labeled "**New User**".

3. Create a user id and password, enter your email, and click the button labeled "**Submit**".

4. You will receive an email from webmaster@shadowood.com confirming your user id and password.

5. Once again, click on the appropriate advisor link above.

6. Enter your user id and password in the corresponding fields and click the button labeled "**Enter**".

7. Click on the option labeled "**First Available**".

8. The next screen displays how long your advisor wishes the appointment to be. Click "**Continue**".

9. You will be presented with calendars for the months of February, March, and April (NOTE THAT WE ARE ONLY USING FEBRUARY). Grayed out days are not available. Click on the date that wish to make an appointment for (for the majority, it is only Thursday, February 13, 2003. However, there are a few advisors with available hours on other days. The email you received will have mentioned if this is the case.)

10. You will see the remaining available times to meet with your advisor. Click on the time that you wish to meet.

11. You will see a box with a big red check mark in it next to the words "Appointment Scheduled", and you'll receive an email confirming your appointment with the date and time you made the appointment.

FOR ADVISORS: INSTRUCTIONS TO CHECK APPOINTMENTS AT NETAPPOINTMENT.COM

1. Click on the appropriate advisor link above.

2. Enter your user id and password (sent to you via email from David and Bill) in the corresponding fields and click the button labeled "**Enter**".

3. Click on your name.

4. Choose "**View Sequential List**", "**View By Date**", or "**Next 10 Days**". Click "**Continue**".

5. Your appointments will now be displayed.

The advisees will be expected to follow these instructions to set up their appointments with their advisors. Following the use of NetAppointment.com for Academic Advising Day appointment, which last several days, we will use two questionnaires to gather data about the experience. This data will include the user-friendliness of the NetAppointment.com for professors and students to schedule appointments, the ease with which appointments were scheduled, how much time was saved on either end, whether any students or professors were confused at any time, and if the professors and students found the service to be helpful. From this data we will draw conclusions about the usefulness of using NetAppointment.com for future Academic Advising Days.

5 Data Analysis

In order to collect data from our study, it was decided that the distribution and tabulation of questionnaires would be most effective. Both Professor and Student Questionnaires were developed (see Appendices A and B respectively) and distributed for completion. The Professor's were asked to complete their surveys post-Academic Advising Day and distribute the student surveys to their advisees upon completion of their meetings. Instructions were included to return the surveys via campus mail to David's mailbox. Once the surveys were collected, the data was tabulated through the use of separate spreadsheets for the Professors and Students (see Appendices C and D respectively). Out of 9 enlisted professors, we received 6 completed surveys. Approximately 100 advisees were given questionnaires, out of which 38 actually completed and returned the same. These response levels were lower than anticipated and desired. However, we still felt that meanful conclusions could be drawn from the data available.

Due to the nature of our project, it was decided that the best approach for determining the results of our study was to put together a list of the questions that we wanted answers to and use the data to develop supported conclusions. These questions and results follow in the next section.

6 Results and Discussion

Was online appointment scheduling software easier for the advisors to use than their previous scheduling method? The advisees?

We gave the participants a survey asking them to list their previous methods for scheduling Academic Advising Day ("AAD") appointments. All advisors had previously used email, sign-up sheets, or both to coordinate scheduling AAD appointments. 67% of advisees who responded had previously used either email or sign-up sheets, and an additional 20% had never previously scheduled an AAD appointment. We may then conclude that the major methods for scheduling AAD appointments are through email and sign-up sheets.
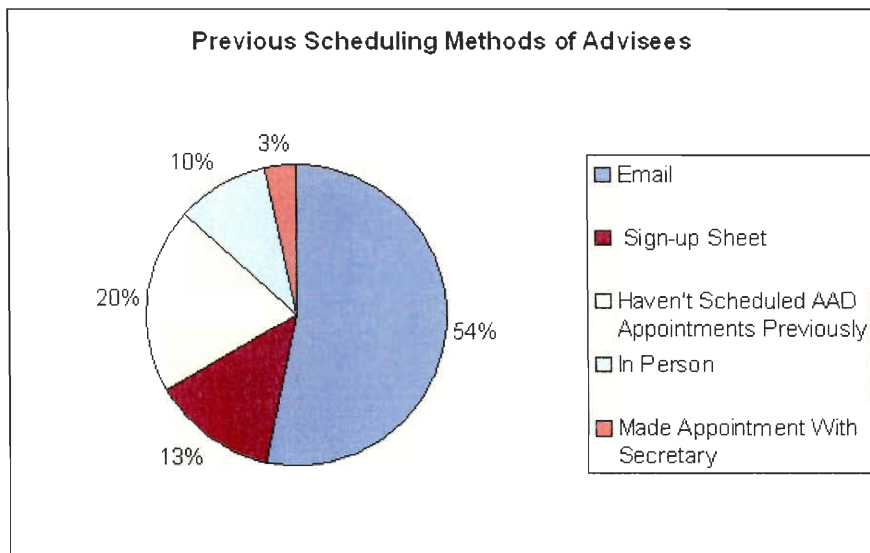
Figure 1: Previous Scheduling Methods of Advisees.

To measure ease of use, the participants were given a survey on which they could rate the ease of a scheduling method on a scale of one to five. A score of five indicates that the method was very easy to use, and a score of one indicates that using the method was very difficult.

The advisors' previous methods were slightly easier than harder to use at 3.17 out of five. The ease of using Online Appointment Scheduling Software ("OASS") was found by the advisors to be very easy to use at 4.33 out of five, and clearly much easier to use than the advisors' previous methods. By comparing the average numerical representation of ease of the two rival systems, we found the OASS to be 23% easier to use than the advisors' previous methods of scheduling appointments on AAD.

The advisees also found the OASS easier to use than their previous scheduling methods, but by a much closer margin than the advisors. The advisees rated their previous methods 4.14 out of five, and rated the OASS 4.61 out of 5, from which we deduced that the average advisee found the OASS 9.4% easier to use than their previous methods for scheduling AAD appointments. Clearly

using an OASS to schedule AAD appointments is easier than a sign-up sheet or email for both the advisors and advisees.

Figure 2: Comparison of Ease of Use between Previous Method and OASS, for both Advisor and Advisee.

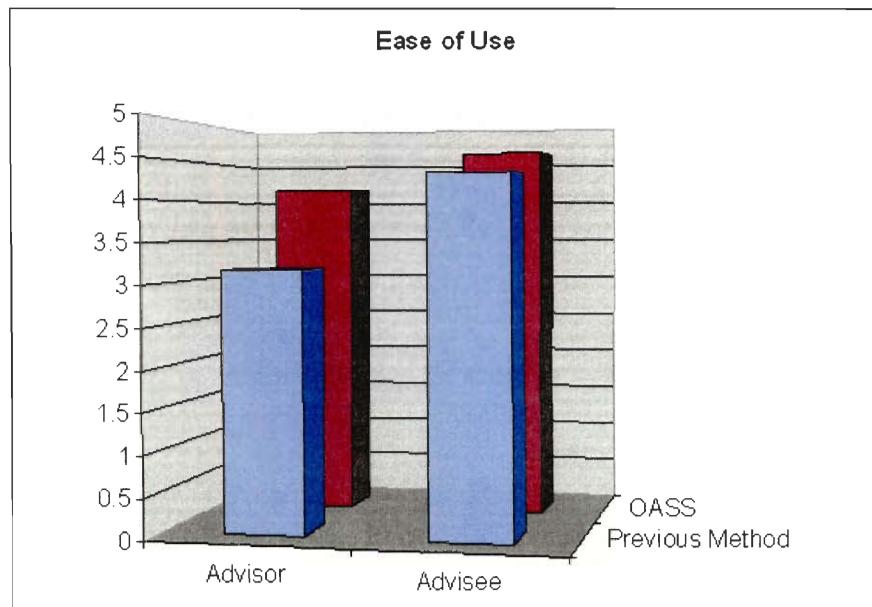**How much time did advisors save by using online appointment scheduling software instead of their previous scheduling methods? The advisees?**

To measure time saved, the participants were asked to rate the amount of time they spent scheduling appointments on a scale of one to five. Five indicates that very little time was spent scheduling an appointment, and one indicates that a lot of time was spent scheduling appointments. The participants were also asked to estimate the amount of time they spent scheduling appointments for both systems. We interpreted the difference between the figures to be the amount of time saved by using one system over another.

The participants were asked to gauge how much time they spent scheduling appointments with both systems on a scale of one to five, where a score of one indicates a lot of time, and a score of five indicates very little time. Since we think of time being measured from low to high and not vice-versa, we subtracted the average values for both systems from five to ascertain a rating where less is better.

From this analysis we found that advisors required 40% more time to schedule appointments using their previous method than they did using the OASS, and the advisees required 11% more time.

In addition to asking participants to rate their time spent scheduling on a scale, we asked for an approximation of the number of minutes spent scheduling their appointments. After plotting these figures we found that one piece of data was in the order of thousands while no others exceeded the
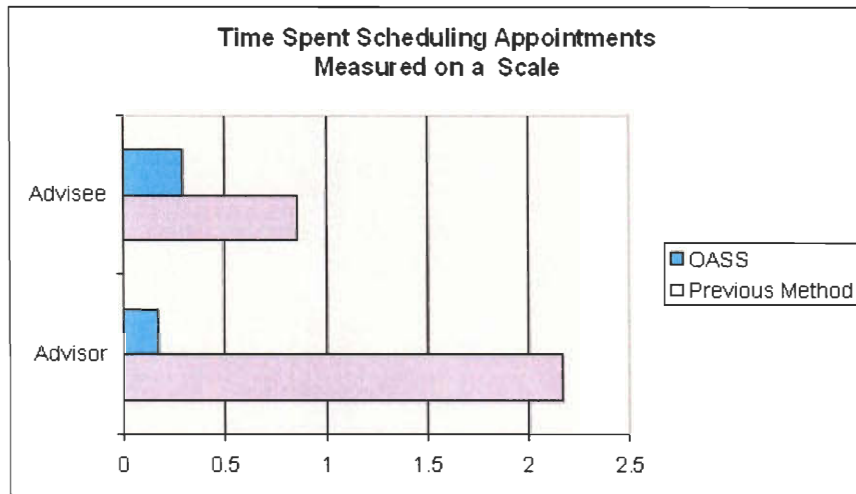
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Figure 3: Comparison of Time Spent Scheduling Appointments between Previous Method and OASS, for both Advisor and Advisee, Measured on a Scale.

order of tens, so we discarded this point when averaging the values. Advisors spent 64 minutes on average scheduling AAD appointments using their previous method, and 13 minutes scheduling AAD appointments with an OASS. Advisees spent 8 minutes on average scheduling AAD appointments using their previous method, and 5 minutes scheduling AAD appointments with an OASS. Clearly using an OASS to schedule AAD appointments saves both advisors and advisees time. Assuming conservatively that advisors save only two-thirds the time they would spend scheduling appointments using their previous methods, and similarly conservatively assuming that an advisor spends only 30 minutes scheduling AAD appointments, a university would save an hour of paid time for every three advisors using an OASS. It then seems to us that a university would benefit from using an OASS, since the overhead and set-up costs are minimal and would be quickly cancelled out by time savings.

Was there a reduction in problems encountered during scheduling for the advisors by using online appointment scheduling software? The advisees?

The participants were asked to rate the number of problems they encountered throughout the process of scheduling AAD appointments on a scale of one to five, five indicating that they encountered no problems, and one indicating that they very frequently encountered problems. To make the data more intuitive, we have subtracted the average values for each category from five, so that a lower number indicates fewer problems, and a higher number indicates more problems.

Both the advisors and advisees encountered fewer problems using the OASS as opposed to their previous scheduling methods. The advisors encountered 27% fewer problems when using the OASS; and the advisees encountered 9% fewer problems when using the OASS.

It is clear that using an OASS instead of email and sign-up sheets for scheduling AAD appointments is less problematic. And though the figures for problem reduction are not as high as time saved, for instance, they are of equal weight. This is because a single problem can cost time

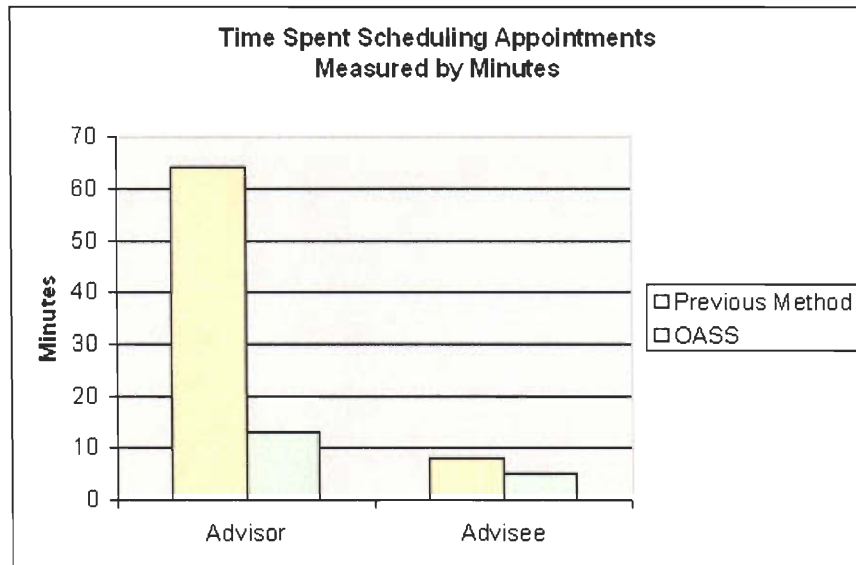**Time Spent Scheduling Appointments Measured by Minutes**

Figure 4: Comparison of Time Spent Scheduling Appointments between Previous Method and OASS, for both Advisor and Advisee, Measured in Minutes.

for more than one person, and can cost each person as much time as scheduling an appointment without a problem.

What were the results of the overall comparison of the online appointment-scheduling software to the advisors' previous scheduling method? The advisees?

We used two questions to gain a perspective on using an OASS compared to other methods. The advisees were asked to rate the OASS to traditional scheduling systems on a scale of one to five, five indicating that the OASS was the best system they had used, and one indicating that the OASS was the worst system they had used. The advisees gave it an average score of 4.18, putting the OASS in their top 14th percentile for scheduling methods. Additionally, both the advisees and the advisors were asked to rate the OASS as compared to their previous scheduling method. This question provided the participants with checkboxes to choose the phrase that best fit their feelings, from "a lot better than" to "a lot worse than," which we then transposed onto a scale ranging from negative two to positive two. The average of both the advisors' and the advisees' score was 1.33, which corresponds to between "a little better than" and "a lot better than."

It is evident by examining this graph that there was only one advisee who preferred their old method of scheduling to the OASS, out of some 29 that responded. We conclude that both the advisors and advisees find the OASS to be more than a little better than their previous scheduling methods. In addition we know that both advisors and advisees find using the OASS to be easier and less problematic, and we know that they spend less time scheduling appointments using the OASS. From this evidence we are left with only one conclusion. The participants in this study found the OASS to be a superior scheduling method to those that they had used prior to the study.

Would the advisors recommend online appointment scheduling software? The advisees?
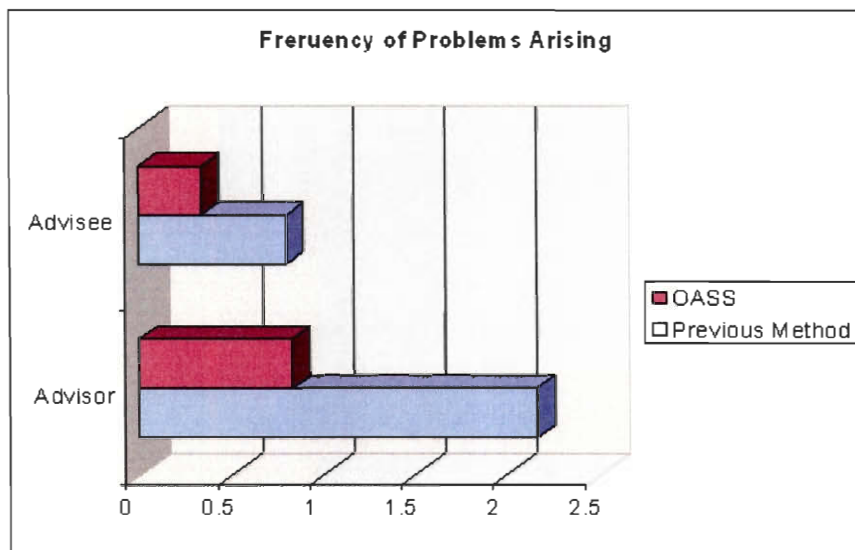
Figure 5: Comparison of Frequency of Problems Arising between Previous Method and OASS, for both Advisor and Advisee.

Five out of six of the advisors enthusiastically recommend OASS, and one suggests "maybe". The majority of advisees that did respond recommend OASS. Among the advisors that responded yes when asked if they would recommend OASS, 50% pointed out how easy the program was to use. Another reason for recommending this program provided by advisors is that the program is a time saver. Advisors also mentioned that the online system was effective because students were more likely to use a sign up sheet as a result of the easy online access. The online system saved time and was more effective because advisees previously had to set up an appointment through the advisors themselves. Even the advisor that answered maybe when asked if they would recommend OASS commented on the convenient access of the online system. The one problem that the advisor mentioned, was encountering difficulty when initializing the OASS.

When the advisees were asked if they would recommend OASS, 92% answered yes. The reason most frequently mentioned by the advisees was the ease of using the OASS. The OASS allowed advisees to stop playing email tag with their advisors when trying to schedule an appointment. One advisee mentioned how easy it was to see when their advisor was free to meet compared to previously trying to compare schedules in person with their advisor. Advisees liked being able to set up an appointment instantly. Advisees also stated that they would recommend the OASS because of its convenience, it eliminated having to go to the advisors office to set up an appointment and allowed them to set up an appointment without having to leave home. Another favorable feature of the OASS that advisees pointed out when asked if they would recommend it was the confirmation email sent to them immediately and the reminder email that was sent out a day before the appointment.

Would the advisors like the see online appointment scheduling software used again? The advisees?

Five out of six of the advisors would like to see OASS used again, and one would not. Of the
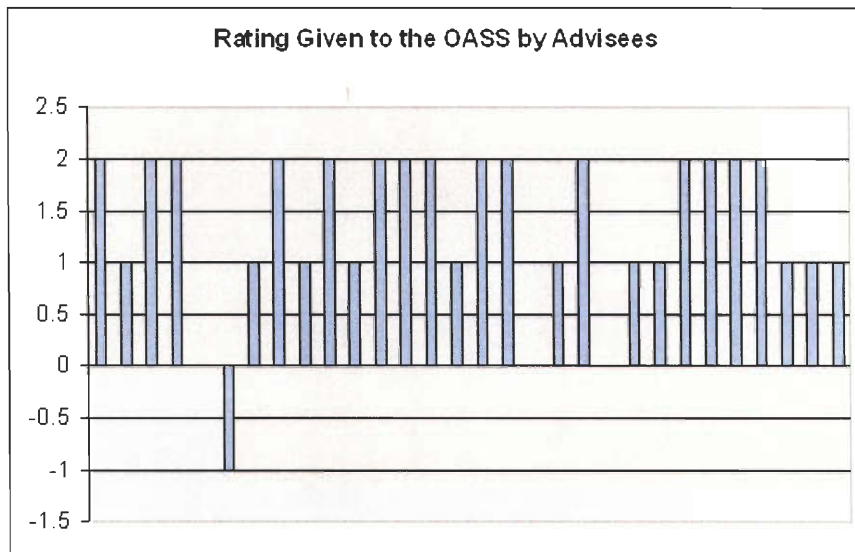
Figure 6: Rating Given to the OASS by Advisees.

advisors that stated they would like to see the software used again, four pointed out that they were more likely to use it for academic advising day than for their office hours. The reason given for this is because while meetings during academic advising need to be prearranged with advisees, during office hours advisees usually just stop by. Advisors account for this by staying in their office during their office hours. The reasons given by the one advisor that stated they would not like to see this software used again were that the system was inflexible, could have improved features, and could have an improved interface.

84% of advisees stated that they would like to see OASS used again for both academic advising and office hours. 13% said they would like to see it again for academic advising but not for office hours. The remaining 3% said they would like to see it again for office hours but not academic advising. The advisees that would like to see OASS used again for academic advising thought this because it made scheduling an appointment for academic advising day convenient, quick, easy, and organized. The one advisee that did not want to see it used again for academic advising preferred interaction with the advisor. The advisees who did not want to see OASS used for office hours stated that office hours should be flexible and allow for them to stop by. However, the advisees which would like to see OASS used in again for office hours liked how it made advisors stick to their office hours and allowed advisors to better plan their time.

7 Conclusions

It is apparent from our project that online appointment scheduling, specifically NetAppointment.com, for Academic Advising Day is much preferred to previous scheduling methods by both advisors and advisees. However, the system used for our study is clearly not perfect. We feel that it would be in WPI's best interest to develop its own better-suited, academically tailored appointment scheduling software for use with future Academic Advising Days. Features such as email reminders the day prior to the appointment, as well as a more intuitive interface than NetAppointment's, were some of the suggested improvements. Perhaps our IQP can be extended into a future Computer Science IQP or MQP which group could actually develop some WPI-specific online appointment scheduling software.

8 References

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Appendices

QUESTIONNAIRE:
ONLINE APPOINTMENT SCHEDULING FOR ACADEMIC ADVISING DAY
Name: _____

PLEASE COMPLETE <u>ALL SIDES</u> OF THIS SURVEY, FOLD IN THIRDS SO THAT THE BOX NUMBER ON THE REVERSE IS SHOWING, STAPLE CLOSED, AND PLACE IN THE CAMPUS MAILBOX ON THE BOTTOM FLOOR OF THE CAMPUS CENTER.

PART I: PREVIOUS SCHEDULING METHOD

How have you previously scheduled Academic Advising Day appointments with your academic advisees? (check all that apply, circle the one used most recently.)

- ☐ Haven't scheduled appointments previously.
- ☐ In person.
- ☐ By phone.
- ☐ By email.
- ☐ Students just dropped in.
- ☐ Students made appointment with secretary.
- ☐ Used sign up sheet.
- ☐ Other (please specify): _____

Please answer the following questions with respect to the most recently used method (that you circled above):

	Rate 1 through 5
How easy was this system to use? (1 = very difficult → 5 = very easy)	
How much time did you spend scheduling appointments? (1 = a lot of time → 5 = very little time) (_____ minutes/hours)	
How often did you encounter problems? (1 = there were problems all the time → 5 = there were no problems)	
How many students did not show up for scheduled appointments? (1 = no one showed up → 5 = everyone showed up) #:_____	
How many students cancelled/rescheduled appointments? (1 = everyone cancelled → 5 = no one cancelled) #:_____	

PART II: NEW NETAPPOINTMENT SCHEDULING METHOD

Please answer the following questions with respect to the new online NetAppointment scheduling method used for this Academic Advising Day:

	Rate 1 through 5
How easy was this system to use? (1 = very difficult → 5 = very easy)	
How much time did you spend scheduling appointments? (1 = a lot of time → 5 = very little time) (_____ minutes/hours)	
How often did you encounter problems? (1 = there were problems all the time → 5 = there were no problems)	
How many students did not show up for scheduled appointments? (1 = no one showed up → 5 = everyone showed up) #:_____	
How many students cancelled/rescheduled appointments? (1 = everyone cancelled → 5 = no one cancelled) #:_____	

Would you recommend the NetAppointment system to other professors? Why or why not?

_____
_____
_____
_____

Would you use NetAppointment or a similar system again in the future for either academic advising day and/or for office hours? Please comment on both situations.

_____
_____
_____
_____

What improvements/changes to NetAppointment would you recommend?

_____
_____
_____
_____

Other comments?

_____
_____
_____
_____

Please rate NetAppointment as compared to old system:
☐   NetAppointment is a lot better than old system.
☐   NetAppointment is a little better than old system.
☐   NetAppointment is about the same as old system.
☐   NetAppointment is a little worse than old system.
☐   NetAppointment is a lot worse than old system.

QUESTIONNAIRE:
ONLINE APPOINTMENT SCHEDULING FOR ACADEMIC ADVISING DAY
Advisor: _____

PLEASE COMPLETE <u>ALL SIDES</u> OF THIS SURVEY, FOLD IN THIRDS SO THAT THE BOX NUMBER ON THE REVERSE IS SHOWING, STAPLE CLOSED, AND PLACE IN THE CAMPUS MAILBOX ON THE BOTTOM FLOOR OF THE CAMPUS CENTER.

For our IQP we are testing the effectiveness of using the online scheduling software you just used for scheduling appointments with academic advisors. Our hope is that using online scheduling services will make everyone's life easier, but we'd like to know what you think. Our conclusions are going to be based largely on the feedback we receive from the students who used the system for this Academic Advising Day. We'd really appreciate it if you'd complete this short survey about your experience with the online appointment scheduling system for this Academic Advising Day, and your opinions about any other systems you've used. It will only take a couple of minutes, and remember, you'll have to do an IQP too someday.

Thanks,
David Feinzeig (david@wpi.edu)
Bill Meola (bmeola@wpi.edu)

PART I: PREVIOUS SCHEDULING METHOD

How have you previously scheduled Academic Advising Day appointments with your academic advisor? (check all that apply, circle the one used most recently.)

- ☐ Haven't scheduled appointments previously.
- ☐ In person.
- ☐ By phone.
- ☐ By email.
- ☐ Just dropped in.
- ☐ Made appointment with secretary.
- ☐ Used sign up sheet.
- ☐ Other (please specify): _____

Please answer the following questions with respect to the most recently used method (that you circled above):

	Rate 1 through 5
How easy was this system to use? (1 = very difficult → 5 = very easy)	
How much time did you spend scheduling your appointment? (1 = a lot of time → 5 = very little time) (_____ minutes/hours)	
How often did you encounter problems? (1 = there were problems all the time → 5 = there were no problems)	
How often did you forget about a scheduled appointment? (1 = always forgot → 5 = never forgot)	

PART II: NEW NETAPPOINTMENT SCHEDULING METHOD

Please answer the following questions with respect to the new online NetAppointment scheduling method used for this Academic Advising Day:

	Rate 1 through 5
How easy was this system to use? (1 = very difficult → 5 = very easy)	
How much time did you spend scheduling your appointment? (1 = a lot of time → 5 = very little time) (_____ minutes/hours)	
How often did you encounter problems? (1 = there were problems all the time → 5 = there were no problems)	
How would you rate using this system over traditional ones? (1 = much worse than anything else → 5 = best thing used)	
How helpful were the instructions? (1 = worthless instructions → 5 = the instructions were perfect)	
How comfortable were you with using NetAppointment to schedule an appointment? (1 = not comfortable at all → 5 = very comfortable)	

Did you go to your scheduled appointment? (YES/NO) _____

Would you recommend the NetAppointment system to other students? Why or why not?

_____
_____
_____
_____

Would you like to see NetAppointment or a similar system used again in the future for either academic advising day and/or for office hours? Please comment on both situations.

_____
_____
_____
_____

What improvements/changes to NetAppointment would you recommend?

_____
_____
_____
_____

Other comments?

_____
_____
_____
_____

Please rate NetAppointment as compared to old system:
- ☐ NetAppointment is a lot better than old system.
- ☐ NetAppointment is a little better than old system.
- ☐ NetAppointment is about the same as old system.
- ☐ NetAppointment is a little worse than old system.
- ☐ NetAppointment is a lot worse than old system.

Appendix C - Professor Questionnaire Tabulation

	1	2a	2b	3	4a	4b	5a	5b	6	7a	7b	8	9a	9b	10a	10b	11	Calc1	Calc1%	Calc2	Calc2%	SchedTimeDiff	NoShowDiff
Blandino	2	2		4	5		4		5	5		5	4	1	4	1	2	17	68	23	92	0	-1
Heinricher	4	4	60	2	4	1	3	3	3	4	20	2	5	0	5	0	1	17	68	19	76	40	1
Hansen	3	2		3	3		4		5	5		5	5		5		1	15	60	25	100	0	0
Loiacono	2	1	120	1	3	3	5	0	5	5	2	5	4	1	5	0	2	12	48	24	96	118	2
Ault	5	5	15	4	4	3			4	5	15	4	4	1	5	0	0	18	72	22	88	0	2
Miller	3	3	60	3	4	3	4	3	4	5	15	4	4	1	4	2	2	17	68	21	84	45	2
Norton																							
Brown																							
Bar-On																							
TOTALS	19	17	255	17	23	10	20	6	26	29	52	25	26	4	28	3	8	96		134		203	7
TOTALS%	63.333	56.667		56.667	76.667		66.667		86.667	96.667		83.333	86.667		93.333				64		89.333		

Appendix D - Student Questionnaire Tabulation

Adv	#	PrevSched?	1	2a	2b	3	4	5	6a	6b	7	8	9	10	11	12	Calc1	Calc1%	Calc2	Calc2%	SchedTimeDiff
Blandino	1	3	4	5	5	3	4	5	5	2	5	5	4	5	1	2	16	80	29	96.667	3
Blandino	2	0						5	5		5	5	5	5	1		0	0	30	100	0
Blandino	3	3	4	5	2	4	4	5	5	3	4	5	4	3	1	2	17	85	26	86.667	-1
Hansen	4	3	5	5	3	3	5	5	5	3	5	5	5	5	1	2	18	90	30	100	0
Hansen	5	3	4	5	5	5	5	4	5	3	5	3	5	5	1	0	19	95	27	90	2
Hansen	6	3	4	5	2	5	5	3	3	5	5	2	2	3	1	-1	19	95	18	60	-3
Loiacono	7	3	5	4		5	4	5	5		5	4	4	5	1	1	18	90	28	93.333	0
Loiacono	8	6	4	5	5	5	5	4	5	5	5	5	4	4	1	2	19	95	27	90	0
Loiacono	9	3	3	3		4	5	4	4		4	3	3	5	1	1	15	75	23	76.667	0
Loiacono	10	3	3	4	10	3	4	5	5	5	4	5	4	5	1	2	14	70	28	93.333	5
Loiacono	11	0						5	5	5	5	5	3	4	1		0	0	27	90	-5
Loiacono	12	6	5	5	1	5	5	5	5		5	5	5	5	1	2	20	100	30	100	1
Loiacono	13	1	5	2		5	5	5	4		1	3	5	4	1	2	17	85	22	73.333	0
Loiacono	14	3	4	2	30	5	5	5	5	2	5	4	5	4	1	2	16	80	28	93.333	28
Loiacono	15	8	4	4	5	4	4	5	4	5	4	4	3	4	1	1	16	80	24	80	0
Loiacono	16	0						5	5	5	5	5	4	5	1		0	0	29	96.667	-5
Loiacono	17	1	5	5		5	1	5	5		5	5	5	5	1	2	16	80	30	100	0
Ault	18	3	4	5	2	4	5	5	5	5	5	3	4	4	1	0	18	90	26	86.667	-3
Ault	19	6	4	5	1	5	5	3	4	6	5	3	3	4	1	1	19	95	22	73.333	-5
Ault	20	0						4	5	1	5	4	5	5	1		0	0	28	93.333	-1
Miller	21	8	4	5	13	5	5	4	5	10	4	4	4	4	0	0	19	95	25	83.333	3
Miller	22	0						5	5	5	5	5	5	5	1		0	0	30	100	-5
Miller	23	3	4	5	2	5	5	4	5	2	5	4	3	4	1	1	19	95	25	83.333	0
Miller	24	0						5	5	5	5	4		5	1		0	0	24	80	-5
Miller	25	8	3	3		2	2	5	5		5	5	5	5	1	2	10	50	30	100	0
Miller	26	3	4	2	1440	5	4	5	5	2	5	5	5	5	1	2	15	75	30	100	1438
Miller	27	3	4	3		4	5	5	5		5	5	4	5	1	2	16	80	29	96.667	0
Norton	28	8	4	4	4	5	5	5	4	15	5	3	5	3	1	1	18	90	25	83.333	-11
Norton	29	1	4	3	20	3	5	4	4	15	3	4	4	5	1	1	15	75	24	80	5
Norton	30	8	4	4	6	3	3	4	4	3	4	4	3	3	1	1	14	70	22	73.333	3
Norton	31	6	5	5	1	5	5	5	5	3	5	4	5	2	1	2	20	100	26	86.667	-2
Norton	32	8	3	4		3	5	4	5	5	5	4	4	3	1	1	15	75	25	83.333	-5
Norton	33	0						4	4	10	4	4	4	4	1		0	0	24	80	-10
Norton	34	3	5	4	30	3	5	5	5	2	5	5	5	5	1	2	17	85	30	100	28
Brown	35	5	4	5		5	5	5	5	3	4	5	5	4	1	2	19	95	28	93.333	-3
Brown	36	3	5	4	20	3	5	5	5	5	5	4	4	5	1	1	17	85	28	93.333	15
Bar-On	37	0						5	5	5	5	4	4	5	1		0	0	28	93.333	-5
?	38	3	4	4		5	5	4	4		5	3	3	5	1	1	18	90	24	80	0
	TOTALS		124	124	1607	126	135	175	179	145	176	159	154	166	37	40					1462
	TOTALS%		65.263	65.263		66.316	71.053	92.105	94.211		92.632	83.684	81.053	87.368	97.368			66.974		88.509	38.47368421