

INFORMATION SYSTEMS EDUCATION JOURNAL

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Acclimating Students to Technology in the First-Year College Experience

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Abstract

The start of the college experience is often hectic as students discover their new surroundings on campus. Students must carry out several high-tech tasks on their laptops and mobile devices in order to be successful participants in the digital culture that permeates their institution of higher learning. This paper describes the implementation of mandatory JumpStart sessions, held during the first week of the semester outside of class time, for first year students enrolled in a required Technology Concepts course. The goal of these peer-led sessions is to set up student laptops and devices to function within the university's computing infrastructure, to install needed software for their technology concepts course, to introduce students to computing resources on campus, and to create a social learning environment where students engage with each other. In doing so, students form a community of practice which serves them well as they acclimate to their new surroundings.

Keywords: technology literacy, introductory technology course, tech savvy, mobile computing, freshman experience

1. INTRODUCTION

Incoming college students arrive on college campuses with differing levels of digital literacy, and suddenly find themselves with the need to discover and acclimate to the new technology devices and infrastructure that surround them. They must set up email on their laptops and devices, install malware and virus detection software, navigate their university's intranet and learning management system (LMS) to access course documents and files, and install additional software on their laptops for use in courses in which they are enrolled during the coming semester.

As higher education continues to depend on the use of technology and the web to deliver courses and exams, manage grades, place students in work-study assignments, register for courses, and access online library resources, the need for

students to have a properly configured laptop and mobile device becomes essential.

This paper describes the development and implementation of JumpStart sessions designed to help freshman students at a business university configure their laptops and mobile devices, install necessary software to prepare for their required technology concepts course, and help them acclimate to the university's computing and online resources. In the process, students participate in a social learning experience, meeting peers and tutors, and engaging with social media.

2. TECHNOLOGY AND THE FIRST-YEAR COLLEGE EXPERIENCE

Despite the technology savviness of today's digital natives (Prensky, 2001), the level of technology skills that students have when

arriving on campus varies. (Kaminski, Seel, & Cullen, 2003), (Ratliff, 2009), (Winke & Goertler, 2008), (Feldmann & Feldmann, 2000). Kaminski (Kaminski, Seel, & Cullen, 2003) states that institutions have found "a fundamental 'digital divide' in computer-based skills that students bring to post-secondary education.

Winke and Goertler (2008) studied the abilities of 911 post-secondary students at a state university, 98% of whom owned or had access to a laptop or desktop computer. Their results found "a personal versus academic/professional computer literacy divide" among students. Many easily could send email, browse the Internet, play videos, and download files, but were not familiar with more advanced tasks such as interacting with multimedia, and maintaining websites. (Winke & Goertler, 2008, p. 494)

Stone, Hoffman, Madigan, and Vance (2006) examined how first-year students at universities in Pennsylvania and Connecticut learned their technology skills. They found that "a lack of basic ICT (information and communication technology) skills may render an incoming freshman unable to perform the fundamental tasks required at the university level." (Stone, Hoffman, Madigan, & Vance, 2006, p. 118)

Collaborative learning, where students learn by working together in small groups to solve problems, has been shown to be beneficial for students learning technology. "In order for students to become competent users of the technology they need to be able to integrate the technology into daily ... activities." (Miertschin & Willis, 2004, p. 152) Learning from peers has been shown to be effective in developing a community of learners. (Tinto, 2000), (Frydenberg, 2013) "In a tutoring lab setting, student tutors bring with them the authentic experience of having themselves learned the material that they are trying to explain, an awareness of the difficult concepts, and an understanding of what aided their own learning." (Frydenberg, 2013, p. 52) Students working together form learning groups that promote engagement with the topic. "Students in a learning community tend to form their own support groups; learning community students become more actively involved, and students' stories always highlight the powerful messages about the value of collaborative learning." (Tinto, 2000, p. 1)

Given the disparity of technology skills among incoming college students, and the effectiveness in learning when students engage with both

technology and each other, the authors set up "JumpStart" sessions during their first week of classes in order to ease the transition and meet these goals. These questions guided this study:

- How could small group, peer-led "jump start" sessions help students adapt to the technology needs of their freshman experience?
- Would small group sessions enable students to accomplish the tasks necessary to set up their laptops and mobile devices for use in their first year IT course?
- How could such a session include a social component that would engage students to use connect both in person and online with campus resources and peers?

3. DESIGN OF JUMPSTART SESSIONS

The authors developed JumpStart sessions to acclimate first year introductory technology students enrolled in IT 101 (Introduction to Information Technology and Computing Concepts), an introductory IT course required of all first year students at Bentley University, a business university in Massachusetts. IT 101 teaches digital literacy skills and covers information technology topics, including making use of laptops, productivity and application software, the World Wide Web, computer components and mobile devices, developing web pages with HTML, operating systems, the Internet, image and video formats, and wireless networking. The course is required of the approximately 900 students in the freshman class, 55% of whom enroll in the course in the fall, and 45% of whom enroll in the spring. The fall semester had 22 sections with an average of 27 students per class.

Bentley University has a mobile computing program, which distributes laptop computers to students as part of their technology fee. For decades, there was only one choice for a laptop model: a machine running the Windows operating system. As laptop form factors and the popularity of multiple operating systems has evolved, the 2014-2015 year was the first where students could choose between a full-size laptop or ultrabook running Windows, or a MacBook Air running MacOS. The Windows machines were equipped with a base image including Office 2013, FTP software, and university controlled antivirus software. The standard Mac image included Office 2011 for Mac, FTP software, and the university controlled antivirus package.

Students needed to download and install additional spyware/malware detection and security software, configure their email, set up their electronic textbooks and course materials, and download additional applications in order to be able to participate fully in their IT 101 and other courses with a functioning computer.

The JumpStart Sessions relied on paid student tutors from the Computer Information Systems Learning and Technology Sandbox (CIS Sandbox), the university's social learning space for exploring technology, to facilitate each session.

Session Goals

Goals for the JumpStart sessions include:

- Introduce students to their group members so students can begin to make friends
- Introduce students the CIS Sandbox, its tutors, services, and activities
- Install HTML editor
- Configure e-books and online resource materials for use in IT 101
- Make sure Java and pop-up blockers are installed correctly
- Set up university email on mobile devices
- Teach safe downloading techniques
- Teach basic laptop maintenance

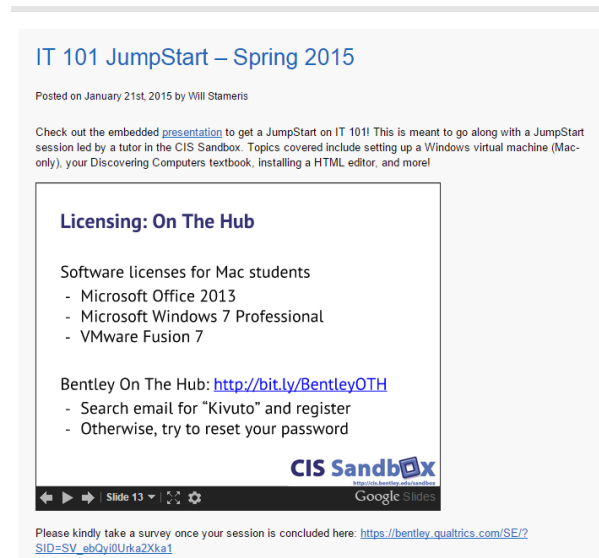


Figure 1. Blog post about the JumpStart Sessions

Students running Mac computers needed to obtain licenses from On The Hub, Microsoft's online licensing site for educational use, then install VMware Fusion 7, setup Windows 7, and

install Office 2013. The installation process for these and other software applications is then the same for Mac and Windows users.

A post on the CIS Sandbox blog, as shown in Figure 1, contains the slide presentation for the tutors to access easily, and for the students to refer to later. The slides contain step-by-step instructions for installing and configuring the necessary software titles as well as information about computing resources on campus.

Implementation

JumpStart sessions were scheduled for the first 8 days of the semester (starting on the second day of classes). Instructors announced them during the first class meeting, and students signed up electronically using a common Google spreadsheet, as shown in Figure 2. The Google spreadsheet centralizes the sign-up process and allows multiple people to edit the same document at the same time.

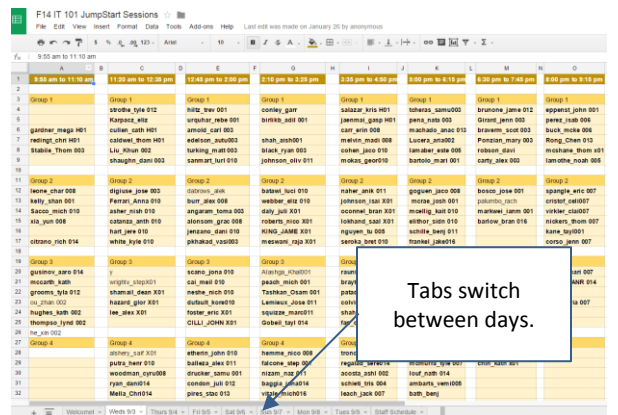


Figure 2. Spreadsheet to sign up for a JumpStart session.

As shown in Figure 2, tabs at the bottom of the sheet jump to sessions offered on a particular day; each day is color coded for easy navigation. Depending on the day, time, and availability of tutors, as many as four sessions were scheduled concomitantly, coinciding with a 75-minute class period. Students signed up for one JumpStart session at a convenient or available time when they did not have classes.

Sessions met in the CIS Sandbox, the university's social learning space for technology education. Six students and one tutor sat around one large table with their laptops, and followed a presentation displayed on a large monitor at the end of the table, as shown in the photo in Figure

3, that one student Tweeted during their session.



Figure 3. Tweeting a group photo after the JumpStart session.

One tutor facilitated each small-group session, which could accommodate as many as six students. With up to four concurrent sessions over 8 course blocks on weekdays, approximately 180 students per weekday, and fewer on weekends, participated in JumpStart sessions. All 600 students enrolled in IT 101 during the fall semester were able to participate in a session within during the first week of classes. Holding these sessions in the CIS Sandbox also introduced the students to the tutoring and other services of the lab before they would need them.

Students signed up with their university email names rather than their full names, as these were all always fewer than 13 characters and served as a way to identify the students uniquely and easily. They appended their section name (001, 002, etc.) when signing up to facilitate filtering all students from a given section who attended. Tutors formatted the names of the students who participated in their sessions in bold as a way to take attendance. At the end of a day, one tutor had the task of preparing a report showing the students who were no-shows during the day.

Appendix I shows the agenda for a JumpStart session. The reader is invited to visit <http://cis.bentley.edu/sandbox> and search for JumpStart to find additional JumpStart session materials.

4. SURVEY RESULTS AND ANALYSIS

After their JumpStart sessions, students were asked to complete a very short survey about their experience. 224 students chose to complete the survey.

Mac vs. Windows Machines

The number of students with machines running Windows was almost twice the number of students using Mac (149 to 75 respectively). This suggests that almost 66% of freshman students selected using a Windows laptop rather than a Mac. The standard configuration was an HP laptop; an extra fee was charged to students who selected a Windows ultrabook (Lenovo Carbon) or the Mac laptops. This undoubtedly influenced the number of students who selected a Mac laptop.

Because students with Macs needed to install different software than the students with Windows laptops, students with Macs needed to sign up for a Mac-only session. With approximately 100 students using Macs each semester, 18 sessions over the six days, or three per day, were designated as Mac Only. This turned out to be a wise choice, as everyone at the table was following the same instructions and procedures.

Session Duration

The time allocated for each session was 75 minutes. 75 minutes was plenty for an introduction followed by five to eight software installs on student machines. Survey results indicate that 77% of students completed the session in 45 - 60 minutes, with almost 50% of total students reporting that they completed their sessions in less than 45 minutes.

Session Evaluation

Close to 50% students found this session extremely helpful for their coursework and 64% students said they would recommend this to their peers.

Said one student, "The session was very helpful! I was able to install the software I needed for the class, with guidance. Also, we had the opportunity to ask questions."

The sessions also enabled students to meet the tutors in the CIS Sandbox learning lab, before they would need to return there to ask them for help later in the semester.

5. LESSONS LEARNED

Several lessons learned will guide the planning and delivery of future JumpStart sessions.

Social, Informal Learning

JumpStart sessions are a good opportunity for social, informal learning from peers. They begin with introductions, so students can meet their classmates and peers. By meeting tutors early in the semester before they have questions on homework, students can feel comfortable going to the CIS Sandbox lab later in the semester when they might need help from tutors. Students know they are welcome.

Social Media

Many students were less than enthusiastic about posting a group selfie to the CIS Sandbox Facebook page or Twitter to record their experience at the JumpStart sessions. Some groups posted Tweets about their participation. This was intended to be a required part of the session content in order to introduce students to the social media feeds of the CIS Sandbox, and to ensure that students knew how to post on social media. Students were also encouraged to follow the CIS Sandbox social media feeds to receive updates throughout the semester.

Session Duration

Although many groups finished the required tasks within 75 minutes, there is no reason to shorten the time allocated. Interviews with tutors and suggested that some may have omitted some of the tasks that were not related to software installs (such as posting about the session on social media). The amount of material to be covered by the JumpStart sessions increases each semester, so the 75 minute format will continue to be used.

Downloads

Software takes a long time to download from On The Hub, especially when students try to access and download the software to their machines over a wireless connection. To avoid the burden of each student having to download all of these files, flash drives containing the required images and files for VMware Fusion 7 installer, Windows 7 image, and Office 2013 installer were provided to each group. Installers for Windows applications, such as Expression Web and an open source graphics editing package were also provided on the flash drives.

Students used the licensing system at On The Hub to obtain their license codes for the Microsoft software, but did not need to download

the software from the On The Hub server. This also proved to be a useful teaching opportunity, as many students were not familiar with installing files from ISO files. One flash drive per group of six students seemed to be sufficient.

Attendance

It is important to have accurate attendance records in order to notify faculty which students did not attend their sessions. Resources need to be allocated to making sure it is kept correctly. While tutors were instructed to take attendance by formatting the student's name on the sign-up spreadsheet in bold, some names were accidentally reformatted. In future semesters, faculty may provide the names of students in their classes for tutors to "check off" in a shared spreadsheet different from the sign-up sheet, to which all students have access.

6. CONCLUSIONS

Setting up software required for use in IT 101 as part of the JumpStart sessions relieves the instructors of spending class time on a time-consuming task. Completing the installs in groups of 6 students with one tutor and gives students a much better and personalized experience than doing it in a class of 27. Because tutors often facilitate several JumpStart sessions, they are prepared to assist students with issues that may arise during the installation process.

Delivering JumpStart sessions to 900 incoming students during the opening days of the fall and spring semesters validates contemporary research findings suggesting that first-year college students have varying degrees of knowledge about their laptops and the software on them. Although students were given information about their laptops and campus computing resources at freshman orientation, it was helpful to review this information again in small groups.

For future sessions, it would be interesting for tutors to know beforehand, where incoming students fall on the scale of knowledge about the technologies addressed in the JumpStart program. This information would be helpful for students to join in student/tutor groups with similar experience levels. Because students sign up for these sessions during their first class period, such classification may have to be done by self-selection. It would be interesting to see if students with similar or different experience levels create more effective groups.

The first week for any incoming student is a time for acclimating to the college experience. Reviewing campus computing resources and guiding students through the process of setting up their technology accounts, installing and configuring software for their computers and mobile devices, keeping their laptops safe, offers students both social and academic benefits as they find their way in their new surroundings.

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Appendix 1. JumpStart Session Content Outline

1. Introductions
 - a. Who's around the table?
 - b. Where are you from?
 - c. Which section of IT 101 are you in?
2. Intro to CIS Sandbox
 - a. Technology available
 - b. Tutoring Services
 - c. Review sessions and other events
 - d. Connecting via social media, blog
3. Configuring Machines
 - a. Set up Wi-Fi if not already working
 - b. Installing software (Macs – VMWare Fusion, Windows, Office)
 - i. Requires licensing through Microsoft "On the Hub",
 - ii. Walk through students through the process of setting up and installing windows and VMware
 - c. Installing Email, e-textbook, HTML editor, graphics editing programs, others
 - d. Configure tutorial software
4. Maintenance
 - a. Teach students how to get out of some of the common laptop issues (software not responding, popup blockers, etc.)
 - b. Encourage students to make use of the software tools downloaded during their JumpStart session
 - c. Remind students of on-campus resources available
5. Configuring Devices
 - a. Set up Wi-Fi and email on smartphones and tablets if not done yet
6. University computing environment
 - a. Configure email
 - b. Access learning management system (Blackboard)
 - c. University intranet (campus jobs, schedules, etc.)
7. Engagement
 - a. Encourage students to take selfies and post to Twitter or CIS Sandbox Facebook page. This engages students, shows social media, and provides an opportunity to develop digital literacy skills.