Using SAS® OnDemand for Academics to Meet Changing Student Needs, Reduce Software Access Barriers, and Grow SAS Skills

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ABSTRACT

SAS OnDemand for Academics enables university instructors and students to securely access and use SAS software through the Internet.

With this hosted delivery model, instructors and universities can reduce installation and configuration requirements and make it easier for students to access SAS software whenever and wherever they want. Distance learners get the same access options as their on-campus counterparts. It's also economical, costing less than many text books.

By easing installation and access, SAS OnDemand for Academics makes it easier for students to focus on learning and applying SAS skills to meet course requirements. Instructors benefit by being able to offer an easy-to-use choice that lets them concentrate on teaching and helping students succeed.

INTRODUCTION

This paper introduces you to SAS OnDemand for Academics, explains its benefits to instructors, students, and universities, and shows how SAS is soliciting and incorporating user feedback to help direct future development. This paper also provides information about current and future releases.

HOW SAS ONDEMAND FOR ACADEMICS WORKS

SAS OnDemand for Academics uses an application service provider (ASP) model. Users have access to SAS software clients that work exclusively with hosted SAS servers maintained by SAS. All SAS processing occurs on these hosted SAS servers. Users connect to the servers through the Internet. The service is available 24 hours a day, seven days a week (except for when the service is down for maintenance).

SAS OnDemand for Academics has three parts - a Control Center Web application, software clients, and the servers hosted by SAS (sometimes referred to as the SAS Cloud). The Control Center Web application is the starting point for all new users. It lets users register, create, or select courses, select the software client that they plan to use, and enter payment information. Instructors receive SAS OnDemand for Academics free of charge. Students purchase it on a per-course basis. Regardless of the course or software client, students currently pay a fee of $59.99 per course.

Existing users can use the Control Center to review account information, receive important information (such as maintenance downtimes), or, if they are instructors, create or edit course information.

After registration, a user can access and use the software client selected for the applicable course. Current client choices include SAS® Enterprise Guide® 4.1, SAS® Enterprise Miner™ 5.3, and JMP® 7. All three clients have been customized to work only with our hosted SAS servers. In addition, SAS Enterprise Guide 4.1 supports most Microsoft Windows Vista operating systems.

When a user performs SAS processing using one of the software clients, the processing actually takes place on the hosted SAS servers. Processing results are returned to the user's client. Any data transmitted across the Internet is secured using various technologies (depending on the software client being used), such as SAS/SECURE™ software components and Secure Sockets Layer (SSL) technology.

The servers hosted by SAS provide access to commonly used SAS data sets. Instructors have the ability to store SAS data sets on these servers for use by their students.

In addition to the three parts, SAS OnDemand for Academics includes support features such as an online support site (http://support.sas.com/ondemand), a peer-to-peer discussion forum (http://support.sas.com/forums), and access to SAS Technical Support (for instructors). The online support site includes reference information, pedagogical strategies, and classroom uses. Instructors should become familiar with this information before beginning a course that uses SAS OnDemand for Academics.

KEY BENEFITS

There are many reasons to use SAS OnDemand for Academics, including the following:

- to meet changing student and instructor needs

- to be sensitive to costs

- to simplify university information technology support requirements

- to reduce access barriers to SAS software

- to enable more people to learn and use SAS

Meeting Student Needs

In today's world, students are used to getting immediate access to information and software through the Internet, cell phones, and other devices. A recent story in *Units* magazine illustrates this trend when discussing what students expect from campus housing. "Known for their senses of individuality, expectations of immediacy and cravings for the latest in cutting-edge technology, today's college students are always connected and always moving. Growing up with computers and the Internet, these students are tech-savvy—and they expect tech-savvy housing."[1]

SAS OnDemand for Academics supports this trend by enabling students to perform the following:

- register, pay, access, and install SAS software on their personal computers using the Internet

- install and use SAS software on multiple PCs with a single license (such as a personal laptop, a dorm room PC, or a parent's computer)

- use SAS software whenever and wherever they need to without having to make trips to university labs

- participate in courses as a distance learner

SAS OnDemand for Academics meets the needs of distance learners, who make up a growing number of students in higher education. According to the National Center for Education Statistics, "distance education has become increasingly common in postsecondary education. In 2004-05, some 62 percent of public and private not-for-profit 2- and 4-year institutions offered distance education courses (defined as "an option for earning course credit at off-campus locations via cable television, Internet, satellite classes, videotapes, correspondence courses, or other means")."[2]

The University of North Carolina saw distance education increase by 20% in just the last year alone.[3] As the distance learning trend continues to grow, a solution such as SAS OnDemand for Academics is attractive to students who are deciding where to attend or how to fit course requirements into their hectic schedules.

The ability to support distance learning options with fully functioning software benefits more than just the students. It enables universities to extend their reach to non-traditional students, such as adults with full-time jobs or with small children. These students tend to be overlooked by universities, but could provide a growth opportunity and a way to better serve the community.[4]

Through SAS OnDemand for Academics, students are exposed to statistical software, perhaps for the first time. Having experience using statistical software could serve them well in other courses or provide a skill to add to their resume.

Meeting Instructor Needs

Some college courses include multiple modules or specific subsets of content that could benefit from the use of different software. In the past, an instructor might have questioned using a separate software application to teach a single module or concept. SAS OnDemand for Academics makes this possible through its easy installation and configuration and its attractive price point.

Instructors that use SAS OnDemand for Academics to teach an entire course or a portion of a course have an added benefit. They can upload to and store SAS data sets or other types of course data files on hosted SAS servers. By uploading course data files, instructors can make it easy for their students to use customized course data. A unique

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[1] Mike Whaling, "Plugged into College Life," in *Units*, (January 2008), ISSN:0744-1681; Volume 32; Issue 1.
[2] National Center for Education Statistics, Contexts of Post Secondary Education, 2008. Available
http://nces.ed.gov/programs/coe/2006/section5/indicator47.asp.
[3] Eric Ferreri. "Distance Education Enrollment Up 20%" in *The Raleigh News & Observer*. Published January 8, 2009. Available
http://www.newsobserver.com/front/story/1358794.html
[4] Brian Bosworth, "The Crisis in Adult Education," in *Issues in Science & Technology*, (2008), ISSN:07485492; Volume 24; Issue 4.

LIBNAME or FILENAME statement is generated for each course; instructors can then share these statements with their students.

With SAS OnDemand for Academics, an instructor retains the ability to develop course curriculums and determine how homework assignments are assigned and submitted. Useful information about using SAS OnDemand for Academics and courses is provided at http://support.sas.com/ondemand/teach.html.

SAS OnDemand for Academics also makes it simpler for instructors to offer distance learning. This ability is becoming more important to many students and previously held negative assumptions about the quality of distance learning education are fading. The National Survey of Student Engagement, recently conducted by the Indiana University Center for Postsecondary Research, found that distance learners experienced deeper learning (more integrated, higher-order thinking) than their counterparts in traditional classroom-based classes.[5]

As the perceived quality of distance learning improves, and barriers to teaching in this manner disappear, instructors can feel more confident about including this option in their courses. SAS OnDemand for Academics makes it easy to provide such an option.

Cost Sensitivity

Cost has always been an issue for universities and their students as fees for a college education rise year after year. According to the U.S. Department of Education, "between 1995-96 and 2005-06, prices for undergraduate tuition, room, and board at public colleges rose by 30 percent, and prices at private colleges rose by 21 percent, after adjustment for inflation."[6]

In today's difficult economic environment, cost becomes an even more important consideration for students, and even for instructors who want to provide a quality course while controlling student expenses. SAS OnDemand for Academics meets this challenge by offering an attractive pricing structure. Instructors are not charged, and students are charged $59.99 per course. For this price, students receive access to the course software for a one-year period. The one-year period ensures that the student's access covers the course period and provides buffer time to support final projects or incomplete activities.

At $59.99 per course, SAS OnDemand for Academics is typically less expensive than many course materials or lab fees. Additionally, the ability of SAS OnDemand for Academics to support distance learning provides a cost advantage to universities looking to trim expenses. A recent publication regarding the forecast of U.S. education IT spending between the years of 2006-2011 agrees with this benefit. It says, "based on rising costs and soaring tuitions, higher education institutions are retooling to become more competitive to both traditional and nontraditional students and cut costs wherever feasible. Trends include reformatting schedules to provide more flexibility, offering more distance learning, and converging and consolidating IT systems."[7]

Low Impact on University

Some universities struggle with supporting the information technology needs of their campus. This can be especially true for small colleges or when economic conditions are challenging. To save time and money, the trend will be to consolidate the available software applications and licenses that a university must manage.[8]

Even universities with large IT infrastructures face mounting pressures when it comes to installing, configuring, policing, and supporting vendor software applications. SAS OnDemand for Academics erases many of these concerns for universities. The process of installing and configuring SAS OnDemand for Academics software is easy and is managed by the actual users (instructors and students).

Because SAS OnDemand for Academics is a hosted service, ongoing support, maintenance, upgrades, and more are handled by SAS itself. This effectively removes the need for a university IT infrastructure or the use of IT lab machines, and ensures that users have current software.

The SAS OnDemand for Academics support site at http://support.sas.com/ondemand provides additional information and support for users. New and updated information is added on a regular basis.

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[5] Maya T. Prabhu, "Report challenges online-learning assumptions," *eSchool News* (2008). Available http://www.eschoolnews.com/news/top-news/?I=56098.
[6] U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics* (2006), (NCES 2007–017), Chapter 3.
[7] Adelaide O'Brien, *U.S. Education IT Spending 2006-2011 Forecast,* (August 2008), IDC Doc #GI213546 Market Overview.
[8] Adelaide O'Brien, *U.S. Education IT Spending 2006-2011 Forecast*, (August 2008), IDC Doc #GI213546 Market Overview.

Increasing SAS Knowledge and Users

Taken as a whole, the benefits of using SAS OnDemand for Academics reduce many barriers of incorporating SAS software in the classroom. The result is that this software can help more people become exposed to and learn how to use powerful SAS software applications.

Because of its direct relationship with instructors, SAS OnDemand for Academics makes it possible for those that are passionate about the value of SAS to teach courses using SAS software, regardless of whether their university licenses SAS. SAS OnDemand for Academics opens the door to using SAS at universities of any size and by instructors located anywhere.

LIMITATIONS

SAS OnDemand for Academics is designed for teaching purposes at degree-granting universities. It's important to note that it is not intended for research or commercial purposes. While there are no processing record limits associated with SAS OnDemand for Academics, there are space quotas. For example, instructors can store up to 100 MB of data files for their courses.

Quotas have been designed to ensure that typical university course processing can be handled, and to prevent the software from being used inappropriately (such as for commercial or administrative purposes). If the quotas present a problem, send us feedback. Feedback enables us to adjust any quotas that could be problematic for teaching objectives.

There is also a limitation on how the available SAS software clients operate. Both SAS Enterprise Guide and JMP provide the user with unique sessions. The user starts the client, performs any necessary processing, saves work locally, and then exits the client. When users exit these clients, their session ends, and no projects or modified data is preserved.

SAS Enterprise Miner operates differently. With this client, projects and metadata are preserved. This is necessary to support the way that the software works. Users can store up to 200 MB of SAS Enterprise Miner projects.

Any data or projects stored on the hosted SAS servers will eventually be purged to recover disk space. For students, this occurs after their purchase period has ended. For instructors, this occurs after a lengthy period of inactivity, such as 8-12 months. SAS OnDemand for Academics provides access to a number of commonly used SAS data sets (such as the Sashelp library). If your course uses any of these SAS data sets, then you don't need to worry about this data being purged or having it uploaded for use by individual classes.

USERS AND USER FEEDBACK

SAS OnDemand for Academics entered production in August 2007. At that time, the software provided access only to SAS Enterprise Guide and was available only in the United States. Since then, there have been hundreds of users at universities all over the United States.

We have welcomed feedback from these users, and continue to accept feedback through our dedicated support site, direct contact, user group meetings, and conferences. This feedback has helped us improve the support site, increase specific space quotas, and enhance the Control Center Web application.

As we move forward, we will continue gathering suggestions from current and prospective users. In particular, we want to know how we can make it even easier for instructors to incorporate SAS OnDemand for Academics into courses.

Visit the following Web site for information about how you can share your thoughts: http://support.sas.com/ondemand/#feedback.

RELEASE UPGRADES AND FUTURE RELEASES

Release Upgrades

Our goal is to keep SAS OnDemand for Academics software clients stable for an entire academic calendar year. Therefore, any major upgrades will be introduced in the summer or, at a minimum, between semesters. New client software will also follow this schedule.

If intermediate client updates or upgrades become necessary, current users will be notified and provided with appropriate information.

Because SAS supports the hosted servers, any server maintenance or upgrades occur as needed and should have little impact to users. We will attempt to perform maintenance during time periods that experience infrequent usage. If there is a need for a longer outage, information will be available on the Control Center Web application.

Future Releases

In February, SAS OnDemand for Academics was made available to international academic users for testing. The initial international release uses SAS 9.1.3 software clients and servers. It is available in English only. A more robust international release is in the planning stages. It will use SAS 9.2 technology and be offered in several languages. These international releases will ensure that universities around the world can gain access to the benefits of SAS OnDemand for Academics and help to grow SAS knowledge and usage.

A new application—SAS® OnDemand for Professional Education—is in the planning stages. Unlike SAS OnDemand for Academics, which is targeted toward universities (instructors and students), SAS OnDemand for Professional Education is targeted toward individual users. Specifically, it will be marketed to users who are preparing for SAS certification or who would like to grow their SAS skills. In the past, many of these users had no method to learn how to use SAS software, especially if they were working for an organization that didn't license SAS software.

Initially, SAS OnDemand for Professional Education will use SAS 9.1.3 technology, be available in English only, and be available only in the United States.

GETTING INVOLVED

We welcome your help in making SAS OnDemand for Academics a better application and in helping us to grow its usage base. If you are an instructor and you would like to try SAS OnDemand for Academics, visit the following site and register as an instructor: http://support.sas.com/ctx3/sodareg/index.html.

Once you have registered, you can use the software to become familiar with it and determine how best to use it in your courses.

If you think this software would be useful to other instructors or colleagues, please share the following Web site with them: www.sas.com/academics.

If you are an existing user and you have feedback about how we can improve the software, ideas about curricula that would complement SAS OnDemand for Academics, or would be interested in writing book materials that could support SAS OnDemand for Academics, please use the following site to provide comments: http://support.sas.com/ondemand/#feedback.

CONCLUSION

Forecasted trends for enrollment in degree-granting institutions are expected to continue to rise over the next few years.[9] Even difficult economic times in the United States don't appear likely to deter students from attending college if it helps lead to employment or job security.[10]

These new and future academic students increasingly expect online solutions and access. SAS OnDemand for Academics is designed to meet the "always on, always available" needs of today's students and instructors, while reducing the software support impact that universities often face. Ultimately, the software provides an easy-to-use, easy-to-purchase, easy-to-support solution for making SAS software available to academic users anywhere, anytime.

Expected future releases of SAS OnDemand for Academics will make the software's benefits available to more international users and to individual learners who want to grow SAS skills or prepare for SAS certification.

RECOMMENDED READING

Ceranowski, Elizabeth, and Catherine Gihlstorf. "From Play-doh to real dough; helping students develop strong SAS skills to jump start their careers in analytics." *Proceedings of the 2008 NESUG*. Cary, NC: SAS Institute Inc. http://www.nesug.org/proceedings/nesug08/as/as10.pdf.

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[9] U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics* (2007), (NCES 2008-022), Chapter 3.
[10] Amy Rolph, "One Loan Worth Taking On: Tuition; Colleges Nationwide See a Boost in Enrollment as the Economy Sours," *Seattle Post Intelligencer* (October 9, 2008).

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