



# Information Technology Skills Census of Student Affairs Staff: Before and After the Rollout

## Purpose

The purpose was to assess the level of basic computer and information technology skills in Student Affairs staff before and after the university workstation "Rollout."

## In Brief

We assessed computer/information technology skills of all full-time Student Affairs staff who used a computer workstation in October 1997, and again in Fall of 1998, on an identical assessment instrument. Participation rate was 100 percent in each assessment.

## History

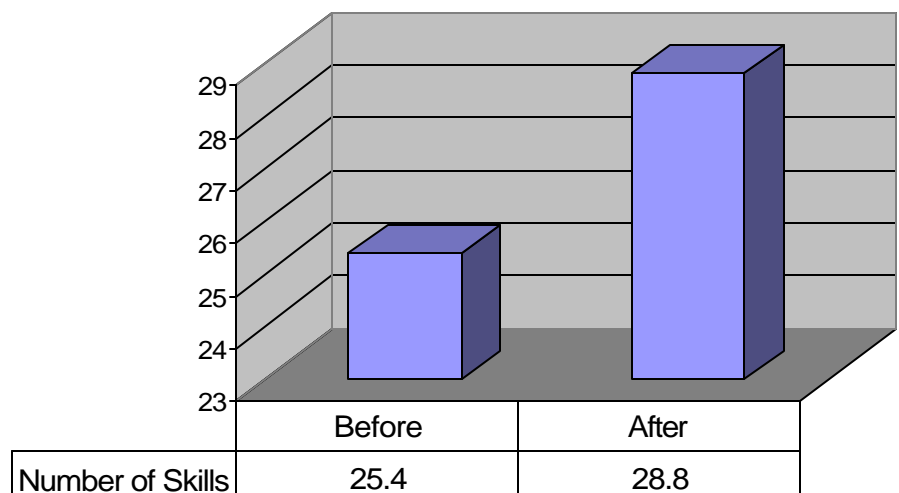
Following an initial census of Student Affairs staff to establish their computer workstation skills level, an in-house training program was started. Those scoring highest on the information technology skills measure were tasked with training their co-workers, on a time-available basis. Meetings of a group of trainers revealed that training was proceeding, and that trainers were sharing their expertise not only on training methods but also on information skills with both other trainers and employees. Soon after, the university provided a major program involving significant new hardware, software, and technical support (the "Rollout").

## The "Rollout"

Within two months of the initiation of our training program, university-wide replacement of existing computers with more powerful computer workstations began. These new systems included standard operating systems and software (Microsoft Windows NT). In addition, all employees receiving a standard office workstation computer were required to undergo formal training in the use of the new operating system and the electronic mail feature (Microsoft Outlook).

Finally, a convenient telephone Help Desk-Hotline was established on campus, allowing any employee to obtain expert, and usually immediate, assistance by placing one phone call. President Milton A. Gordon announced in his 10 September 1998 Convocation Address: "As a result of our CSUF Workstation Rollout ... we begin this new academic year with almost 1,400 new workstations, more than 1,100 printers, and over 2,900 rollout training sessions completed."

Figure 1  
Student Affairs Staff Computer Skills Before and After Rollout



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Student affairs research is a major priority. This research report reflects the Student Affairs commitment to a continual focus on research relating to student affairs.

The mission of the Student Affairs Research Center is to administer and support research on students, including campus climate assessment.

#### Upcoming Reports:

- Sense of Community at CSU Fullerton: A Test of Competing Causal Models.
- Profile of CSU Fullerton Students: Campus Climate Survey

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One year after the initial census, a second assessment of Student Affairs staff was performed.

## Method

### Participants

There were 111 Student Affairs staff in October of 1997 who used computer workstations in their job duties, and were full time employees. Every one of these employees furnished a useable survey of their computer skills or competencies, for a response rate of 100 percent. In Fall 1998 the entire population of Student Affairs Staff was again assessed. Ninety-five of the 111 assessed in October 1997 were present the following year, and an assessment was again obtained from each of them.

### The Instrument

The instrument was a one page self-administered questionnaire which took approximately 10 minutes to complete. It consisted of a listing of proposed minimum competencies desired for full-time staff, like "Open a document" or "Save a file," with basic skills listed for each of the major software packages: Word processing, spreadsheets, databases, and desktop publishing. I also included basic skills in desktop operating system manipulation, the electronic library catalog (OPAC or Online Public Access System), and Internet access. This listing of desired minimum competencies was transformed into a self-report survey by adding spaces for staff members to indicate whether or not they possessed the skill or knowledge. This is the "counting" method of creating compound measures (other methods are "averaging," e.g., Likert scaling, and "weighting," e.g., Thurstone scaling). Bernstein and Dyer (1992, p. 113) note: "The simplest method of combining indicators is to count the number of indicators on which each unit is classified as displaying the property being measured." There was a total of 41 competencies listed on the survey.

Regarding reliability and validity: While no formal data were collected for the purpose of establishing reliability, it appears reasonable, given the nature of

the instrument, to postulate that a given employee who scores 25 (or 35) would score very close to that score on a subsequent testing a week or so later (test-retest reliability), indeed, in one case, a worker lost her score sheet, submitted another one two weeks later, and that score was identical to the later discovered first score. Regarding content validity: The listing of competencies resembles the syllabus of a typical "Introduction to Computers" university course, according to one Computer Science professor who teaches such a course.

### Procedure

The procedure for obtaining completed surveys involved distribution through eleven unit directors. These directors ensured that all staff completed and returned the surveys. Instructions to the staff were provided on the survey instrument itself. Procedure at the second data collection beginning approximately a year later was identical to that of the previous year (except that it was performed via e-mail). Instructions for that assessment were:

#### *Colleagues on the Student Affairs Executive Committee:*

*We would like to assess computer and information skills among full-time staff who use computer equipment in their work. Please forward this e-mail message to all your full-time staff who use computers. As most of you will recognize, this is the same assessment you completed in October 1997. What we would like to do now is a posttest to assess the effect of the Rollout and its required training on our division staff. Then we will publicize our high level of computer and information technology expertise! Please e-mail (or telephone) me if you have any questions.*

## Results

### Pretest

Total number of skills or competencies reported by 111 staff in October of 1997 ranged from a low of zero to a high of the maximum possible: 41 skills. Four staff reported zero skills

or competencies and three reported knowing all 41 skills or competencies. The remainder of the scores was evenly distributed across the remaining values. Scores are summarized in Table 1. The median number of skills reported was 27. This level of 27 skills or competencies out of 41 possible on an instrument assessing a wide variety of computer software establishes the high level of professionalism in Student Affairs. This level was established before the university demonstrated its commitment to standardizing office workstations and training all employees who received a new computer workstation (the Rollout).

### "Experts" Were Identified

Those scoring in the top two deciles (37 through 41 self-identified competencies). These Experts were found in nine of the 11 units in Student Affairs. The experts were tasked with training their co-workers on a time-available basis, as described more fully above.

| Table 1:<br>Frequency Distribution of<br>Computer and Information<br>Technology Skills,<br>Student Affairs Staff:<br>October 1997 |           |
|---|-----------|
| SKILLS  | FREQUENCY |
| 36 to 41  | 22        |
| 31 to 35  | 17        |
| 26 to 30  | 16        |
| 21 to 25  | 14        |
| 16 to 20  | 5         |
| 11 to 15  | 8         |
| 6 to 10   | 10        |
| 0 to 5  | 9         |

### Posttest

Ninety-five of the 111 Student Affairs staff assessed in Fall 1997 were also present in Fall 1998. A full computer

## Information Technology Skills Assessment for Student Affairs Staff

Name \_\_\_\_\_  
Office \_\_\_\_\_ Job Title \_\_\_\_\_

We are interested in assessing the current level of familiarity with computer workstation office software and other information technology. Please indicate your familiarity with information technology by checking the categories below for each task you can perform. For example, if you can double-click one of those pictures on your screen to start a software package, you would place a check mark next to "open application."

#### Electronic Mail

- Send a memo; forward a memo
- Find an address in a different Mailcenter
- Set up an Address Book
- Edit an Address Book (add or delete one address)
- Enclose a file; Retrieve an enclosure

#### Graphics User Interface (Windows 95 or Mac desktop)

- Open (start up) an application
- close an application
- Save a file to an external storage device (hard drive, floppy disc, tape, CD, ZIP-drive)
- Import or export a file from any one software package to any other software package, e.g., read an Excel file in Word; save e-mail to WordPerfect
- Copy a file from an external storage device (e.g., floppy disk) to desktop
- Organize files: On Mac: Make folders; On PC: Make directories
- (Mac Only) use Apple Share folder

#### Word Processing

- Run spell checker
- run print preview
- print one page of a multi-page document
- cut and paste text
- reformat text in a different font
- change margins; change tab settings
- copy a document
- exit a file and save changes
- exit a file without saving changes
- Rename a file
- Insert page breaks; Add headers or footers
- print address labels

#### Spreadsheet

- select a cell; insert figures into cells
- perform arithmetic calculations
- calculate marginal totals using Autosum button
- save a workbook
- do page formatting: center headings; do bolding
- display numbers in Accounting 2 or other format

#### Internet: Web browser

- Access a web page when given an address
- Use a web search engine to find a subject
- Add and delete bookmark
- save images; save text
- print a page; print text

#### On-line public Access Catalog (OPAC)

- Call up OPAC from local workstation
- perform subject search
- perform title search
- perform author search

#### Graphics

- Make a graph
- work with Gif/Jpg's

Total number of information technology competencies you can perform: \_\_\_\_\_

skills assessment was obtained from each of them. The average number of competencies on the first test for the 95 workers who were also present at posttest was 25.4,  $sd = 11.4$ ; on the posttest it was 28.8,  $sd = 10.2$ . This increase understates the improvement in proficiency of our Student Affairs staff. This is due to a ceiling effect: A dozen employees could not have improved from pre-testing to post-testing because they were already at (or near) the maximum possible performance—there was no room for improvement, at least none that could be reflected on the assessment instrument.

The gain in computer knowledge of the 95 Student Affairs staff who were employed full time and on the job during both assessments was significant, matched-pairs  $t(94) = 5.30$ ,  $p < .000$ . The average gain was 3.41 skills. Stated another way, the Division of Student Affairs gained 324 computer skills among its full time staff who used computers. The median number of staff competencies increased from 27 competencies to 32 competencies between the first and the second assessment.

Some staff lost skills in the year between pre and posttest; with two losing as many as 8 skills and two others losing 7. However, the gains were much more dramatic, with 14 Student Affairs staff gaining 10 or more skills during this year. The largest gain was 23 skills and the next largest was an increase of 22 skills.

## Discussion and Questions for Further Exploration

### What Accounts for the Gain in Student Affairs Staff Computer Skills?

Several factors can account for the gain in computer skills. The University Rollout began for Student Affairs shortly after the Student Affairs informal training program. Both no doubt accounted for the significant increase in computer skills. Other explanations: A "Hawthorne effect," or the related Testing effect, results in increases in performance due

to awareness of being in a study. The Maturation effect refers to changes which occur in people over time, and one change could be an increase in work-related skills in general, including those which we assessed.

A History effect refers to events that take place outside an assessment between a pre and post test, if those events influence what is measured. In the time that passed between our two assessments, the importance of information technology continued to increase, and the Y2K problem received media attention. Such changes in the world outside Student Affairs, which drew attention to computers, could well have influenced all people who use computers. In what way did this influence manifest itself in our study? Likely, the effect was for our workers to think about increasing their skills, separately from any effect due to training or Rollout.

### Policy Implications of Tracking Skills

The simple assessment method of counting skills, demonstrated in this report, provides an easy methodology for administrators here and elsewhere to assess both absolute level of computer and information systems skills and competencies, and to assess areas for improvement. Leaders who are interested in assessing the level of existing skills, and later the changes over time, can use the method given here with minimal staff and other expenses. The instrument is self-administered and takes no more than 10 minutes to complete.

Institutional Research programs such as the Professional Development program of the Association for Institutional Research (<http://www.air-web.org/profdev.html>) offer instruction in areas such as database management and enrollment forecasting, applied statistics and a variety of other workshops. A simple evaluation instrument such as the one shown in this report might provide for easy and quick pre and posttest evaluation of such programs, or provide a selection means for placing applicants

for such programs.

## Reference

Bernstein, R. & Dyer, J. (1992). *An introduction to political science methods*, 3d Ed. Englewood Cliffs: New Jersey.

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**Note.** I thank Edward B. Salas for technical support. This is Research Report 5 of 1999/2000.