Final Report

1998-1999
New Learning Environments & Instructional Technology Grant

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on

6 MAY 1999

SUMMARY

On 14 May 1998, the Student Satellite Project (SSP) at the University of Arizona received a grant of $12,665, from the New Learning Environments & Instructional Technology Grants Program, to optimize its capability in electronic communication, data acquisition, referencing and cataloging. With this support, SSP purchased all the hard- and soft-wares listed in the proposal, with some modification dictated by SSP's evolving needs as well as the availability of the merchandise. The newly acquired tools were used to enhance the learning activities of SSP as intended. The 82"-wide and 46"-tall poster, to be presented at the New Learning Environments & Instructional Technology Grants Program review session in CCIT 337 on 6 May 1999, demonstrates the many benefits harnessed from these tools. Not shown on the poster are the changes implemented in the SSP website features and e-mail connections, and students' ability to interface experiments or test equipment to the computers. Also not shown are their writing and filing of technical notes, and their ability in library searching and reference handling. The library and reference skills were taught to the students through the efforts of our partners in the Science-Engineering Library. In collaborating with our colleagues in the library, we found the need to train all our future students as they gain experience through the SSP. Overall, the New Learning Environments & Instructional Technology Grant has given SSP a good start to build an unique new learning environment for solving complex problems through hands-on and multi-disciplinary teamwork.

• INTRODUCTION

   The grant from the New Learning Environments & Instructional Technology Grants Program

was another recognition and tangible support from the University for what President Likins has

described as "the best evidence I have discovered anywhere of the creative initiative of Americans

committed to the Space Program, which has been an important part of my life for forty years."

The present status of the Student Satellite Project (SSP) at the University of Arizona can be

gathered from the articles in the attached first issue of its newsletter. Student participation in the

Spring Semester of 1999 is tallied in the following table.

MAJORS	Fresh.	Soph.	Junior	Senior	Grad.	*Total*
Engineering	9	17	20	22	7.5	75.5
Science	6	4	9	5.5	2	26.5
Optical Science					1.5	1.5
Others	2	1		0.5	1	4.5
Total	*17*	*22*	*29*	*28*	*12*	*108*

  NOTE: Double majors are counted as two halves.

   Below, we give an account of the expenditures and a report on tasks performed.

• FINANCIAL REPORT

Adobe suite (3), Endnote (PC+Mac), Filemaker Pro (PC+Mac)/(hardware): Optiquest V775 (Mac)	1,575.96
Adobe Acrobat 3.0 (PC+Mac)	100.70
Site licenses: Office98 (Mac), Office97 Pro (PC), Project98 (Mac)	178.34
DAVE file sharing/networking software (Mac)	139.99
Components for SCI/LCS workstation	539.49
Dell Dimension R-350 for PAS 569	3,084.90
Epson Stylus 1520 printer plus additional cartridges	825.19
Olympus D-500L digital camera plus accessory pack	939.75
PowerMac G3 - for PAS 569	1,706.65
128MB DIMM (PC-100), 64MB DIMM (G3)	322.25
128MB DIMM (PC-100) : RMA credit - vendor sent incorrect product	(217.00)
128MB DIMM (PC-100) : reorder of correct item	195.51
Components for TTC-groundstation computer	1,461.91
LabView-WIN/AT-M10-16E-10 Starter Kit	1,174.70
CD-writer kit and 10 disks for PAS 569 Dell	481.95

<div align="right">TOTAL $12,727.29</div>

Note: The excess of $62.29 is covered by another account.

• PROJECT ACCOMPLISHMENT

The proposed project consisted two parts: 1) Electronic communications and information management and 2) Computer data acquisition. While Part 1 was the establishment of an efficient system to benefit the entire operation of SSP, Part 2 was to enable the learning of design and testing of subsystems of a complex system.   Both could be generalized to benefit other interdisciplinary and distributive learning environments for complex systems.   The following sections describe what SSP has done under the New Learning Environments & Instructional Technology Grant.

I.   Electronic Communications and Information Management

A.   Electronic Communications

The PowerMac G3 and the Dell Dimension R-350, with their expanded memories and a CD-writer attached to the Dell, form the communication and information center of the SSP. They are linked and use compatible software so that data can be transferred and accessed easily.   All SSP documents, administrative and technical are stored in these two machines. With these two desktop computers, the Project Manager and Project Assistant manage the whole SSP and its website.   To expedite communication, especially in handling different formats of documents, the SSP website was moved to http://uasat.arizona.edu. All sub-sets of SSP mailing lists, such as SSP-Administration, SSP-Mentors, SSP-Team Leads, and the teams' listservs were placed on the <uasat.arizona.edu> server located in the Optical Sciences Center.

The Epson Stylus 1520 printer was added to the pre-existing HP laser B&W printer in PAS 569, The new printer provides colored prints of variable sizes and formats. The 82"-wide and 46"-tall poster on display at CCIT 337 on 6 May 1999 is an example of the product. The Epson Stylus 1520 printer gives an added dimension to the technical documents and presentation materials when color makes a qualitative difference. This ability is specially appreciated in view of SSP's outreach mission on and off campus. The poster mentioned here has been on display at the Science-engineering Library. It was one of the factors of the increase in the number of students that signed up for SSP this semester. Future displays include the Dorothy Finley Challenger Learning Center at the Pima Air and Space Museum.

The photographs on the poster that show students at work were taken by the Olympus D-500L digital camera. This camera has been well used by all the teams in recording their activities as well as the test setups and mockups for technical documentation and archiving. The photos are stored electronically in the two desktop computers in PAS 569, accessible for retrieval and publication.

Another component of electronic communication mentioned in our proposal, which required no budget, was to learn the use of CCIT's Caucus electronic conferencing system. The adequacy of the e-mail service and the weekly group meetings did not find this particular mode of electronic communication urgent; therefore, it was deleted from this project.

B. Information Management

The new learning environment created by SSP requires information literacy and the use of customized knowledge products that facilitate the obtaining, managing and utilizing information specific to the task at hand. Getting the right information, from assessing, organizing, managing, to synthesizing it into a larger, existing body of knowledge constitute the core information literacy competencies. Our partners in the Science-Engineering Library have provided to our students information-literacy and information-retrieval training.

To meet the growing need for organizing and archiving the large volume of information in a way that enables swift and accurate retrieval, our librarian partners have planned sessions to train SSP students in the use of the personal bibliographic management software program, EndNote. Due to the hectic schedules of the students, these sessions need to be rescheduled in the coming semesters.

Because students enter SSP at any stage and then move on and graduate, the training session for both the core information literacy competencies and the use of EndNote will have to be offered each semester. Continuing means to support this endeavor on a regular basis must be found. In the meantime, SSP benefit from the dedication of its librarian partners. A separate report from our librarian partners is attached to this report.

II. Computer Data Acquisition

The Science Team (SCI) and the Laser Communication Systems Teams (LCS) were the first to face the need to do laboratory data acquisition by computer. A PC was built from parts and then equipped with National Instruments' data acquisition system LabView to meet this need as was anticipated. This system has been well used and the demand for it grows as SSP moves into proto-type testing stage. This is especially acute, since all the teams have their own lab sites spread out on and even off campus, so that more units will be needed in the 1999 Fall Semester.

• CONCLUSION

SSP has completed what it set out to do under the 1998-1999 New Learning Environments & Instructional Technology Grant. We have acquired the material basis for effective electronic communication and information acquisition as well as the required skills. We have found that the

training provided by our librarian partners should be a continuing one, since new students continue to enter SSP. The Grant has given SSP a good start on its way to build a unique new learning environment for solving complex problems through hands-on and multi-disciplinary teamwork.

We invite the Provost and the Grant Officers to visit our website at http:///uasat.arizona.edu for a better view of how SSP is doing.

• ACKNOWLEDGEMENT

Although the proposal was submitted by faculty mentors of SSP, all the work in the acquisition, assembling, preparation, and operation of the new systems was done by SSP Project Manager Chris Lewicki and Project Assistant Brian Ibbotsen.

ATTACHMENTS:

1. SSP NEWSLETTER
2. REPORT FROM LIBRARIAN PARTNERS