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## THE UNIVERSITY OF THE FUTURE

by Donald G. Perrin Ph.D.

Imagine a university without walls where you select programs, courses and mentors from leading institutions of higher learning, libraries, museums and technical institutes throughout the world.

Imagine a university designed for non-traditional learners where learning can take place anytime, anywhere and where the learner makes the choices.

Imagine a university that operates 24 hours a day, 360 days a year where you can participate in live courses or complete the courses in your own timeframe.

Imagine a university that is truly international, multicultural and multi-lingual, where courses are originated in different countries, cultures and languages.

Imagine a university where you design your program of studies based on your needs, interests, preferred learning style and method of evaluation.

Imagine a university where computers, interactive multimedia, electronic libraries, and the information superhighway play a major role in providing a full range of interactive courses and services.

Imagine a university where the curriculum is oriented to future needs, prepares you for real jobs and initiates placement strategies at the time you enroll.

Imagine a university where ingenious, creative and collaborative efforts are rewarded and programs are future-oriented, exciting and relevant.

The university you are imagining will soon become real. It is called the The University of the Future, its mission is to inspire global transformation through learning. Inspire means there is a focus on motivation and positive outcomes, global means worldwide and transformation implies significant change of a positive nature. Learning the ability to apply, analyze, create and value what is learned and to use it for the advancement of civilization.

Note: The University of the Future is a virtual learning environment, not a physical campus or place. This project is a joint venture of the Alquist Center for Innovative Learning at San Jose State University and Vital Pathways of Mountain View, Calif.

### TARGET POPULATION — NON-TRADITIONAL LEARNERS

Most institutions of higher learning serve traditional learners —those who are dependent on skilled teachers to organize, present and evaluate knowledge and skills in their discipline. Approximately half of a university freshmen class is students who recently graduated from high school. In a typical university setting, nearly half of the freshmen students drop out in the first year. It is believed that this loss reflects the difficulty of transferring to an environment where students are responsible for their own learning. It may also be because the predominant teaching style of a university is lectures and that students with incompatible learning styles are not well supported.

Hansen, Silver and Strong's Learning Styles Model recognizes four learning styles — directive, inquiry, creative and cooperative. People learn in all modes but one style is usually dominant or preferred. The university lecture is a directive style of learning — a step-by-step development toward goals

set by the instructor. Students who are curious like to move ahead on their own. Students who are creative are frustrated by slow and linear presentation. Students who prefer team activities are stifled by lack of interaction. The result is that curious, creative and cooperative learners — the non-traditional learners — may come to be considered by their teachers as disruptive, disobedient or even poor students.

### ***FAMILY AND PROFESSIONAL COMMITMENTS***

The majority of non-traditional learners are more mature, more independent and often have substantial commitments to their jobs and/or families. They are less able to commute to the physical campus or fit university schedules into their work schedules. They want to participate in setting goals and be responsible for their own learning.

In traditional or directive learning the instructor controls goal-setting and presentation of the lesson. In the other three quadrants, students participate in goal-setting and assume greater responsibility for learning. Inquiry encourages curiosity, exploration and critical thinking. Creative cultivates insight, imagination and innovation. Cooperative fosters interaction, collaboration and team skills.

Silver points out that asking students to learn in a style that is not natural for them is like asking them to write with their other hand. Many learners are classified as learning disabled when really they learn in a different way. Educators such as Bruce Joyce have developed methods for facilitating learning that capitalize on the curiosity, creativity and social participation of students. Silver advocates teaching around-the-wheel (using all teaching-learning styles within a lesson) to involve a wider range of students and make learning more varied and interesting.

### ***THE NON-TRADITIONAL LEARNER***

The University of the Future targets non-traditional learners, persons over 24-years-old who are independent learners and cannot easily attend a physical campus. This is the largest untapped market for education worldwide, and may represent up to 80 percent of the potential market for degree courses in virtual universities. In the future, as the flexibility of the virtual university becomes evident, it may also recruit significant numbers of traditional learners.

The student has the option of doing all of his or her courses at one university and receive a degree from that institution, or select from the offerings of all collaborating universities to receive credit and a degree from the University of the Future.

### ***BENEFITS TO PARTICIPATING UNIVERSITIES***

Students are not the only beneficiaries of the virtual university. Educational institutions that generate courses in electronic media formats — television or computer-based — can benefit by marketing their courses to a broader population through the University of the Future. The student pays the normal university fee for the course. The institution provides one set of materials to the University of the Future, a value added vendor which does marketing, advising, evaluation and record keeping.

### ***CURRICULUM RESOURCES***

Curriculum is available in electronic media from hundreds of universities worldwide and comes in many forms from libraries and databases to packaged courses. Electronic libraries include print, audio, film and video resources housed in repositories around the world including the Library of Congress, government agencies (NASA, NIH, NSF, NLM and museums), television networks (ABC, CBS, NBC and PBS), news networks (Associated Press, CNN, Reuters and Tass), publishers (Encyclopedia Britannica, Grolier, Macmillan and National Geographic), privately owned information resources (dialog), and the resources of the Internet.

Printed books are costly to produce and publishers are seeking other ways of marketing their information products such as online information systems and CD-ROMs. Courseware and packaged courses include video and digital media and a variety of course structures based on combinations of these resources with other learning activities.

Video includes live-interactive television courses and teleconferences. Videocassette courses may be recorded versions of live courses or specially produced for learning from tape. Major suppliers of television-based courses include Mind Extension University, National Technological University, the Open University in England, Stanford, MIT and hundreds of universities and colleges with television outreach including the Television Education Network at San Jose State. San Jose offers its courses live, on-campus; live via-television at regional centers, schools and industries; and on videocassette. This provides a range of options for learners with schedule conflicts and those distant from the campus.

Digital courseware includes Computer Assisted Learning, Hypermedia and Multimedia available online through the Internet and other information services or accessed from diskettes or a CD-ROM. Digital media online or in CD-ROM format is increasingly provided by publishing companies such as Microsoft and National Geographic. There is a spectrum of course formats that bridge electronic libraries and courseware. One example is the Shell Course, an activity template that enables the students to generate the information base for the course as they do their research. Such courses are used to study communities or build worlds that do not yet exist through team research, brainstorming and innovation. Such courses are extremely popular because they push out the frontiers of knowledge, involve students physically and intellectually and offer opportunities for imagination and creative thinking.

### ***EVALUATION METHODS***

The University of the Future will develop methods of evaluation to inform students of their progress and it provides instructors with tools to learning. Assignment of letter grades is not consistent with the philosophy of the University of the Future. Credit will be given when the student reaches the required level of performance.

In a traditional university courses are of finite size and only a set number of students can participate in a given semester. The University of the Future will develop its own

evaluation instruments to facilitate classes of any size. The integrity of a course and its evaluation procedures must be maintained to protect the University of the Future, the university that supplies the course, and the student. It is important that whatever method of evaluation is used, it is consistent with the learning style of the student and the goals of the course.

## PARALLELS BETWEEN PHYSICAL AND VIRTUAL UNIVERSITIES

A university is a community of people with diverse interests and goals. The common focus of learners is personal growth and job skills. Its resources include libraries, instructors, classrooms, laboratories, administrative offices and social/recreational facilities.

- **Instruction.** In the virtual university learning resources are replicated in electronic formats — the electronic library and the Internet, television, interactive video, desktop video, and multimedia instruction with live discussions via telephone or continuing dialog through computer forums and bulletin boards. Laboratories can be simulated or local community resources can be used.

- **Administration.** Administrative functions are accomplished online on a 24-hour basis, with human resources always available.

- **Social/Recreational.** These areas are least well served by a virtual university. For this reason traditional universities will usually be preferred by recent high school graduates.

- **Control.** In a virtual university, the learner makes the choices from a broad range of courses, institutions and professors. Courses are adapted to the schedule and learning style of the learner and customized for specific needs. Courses can start and end at any time, and operate 24-hours. (Compare this with a traditional university where the institution retains control. The student has only a limited selection of courses and professors, schedules are inflexible, and rules are punitive for stu-

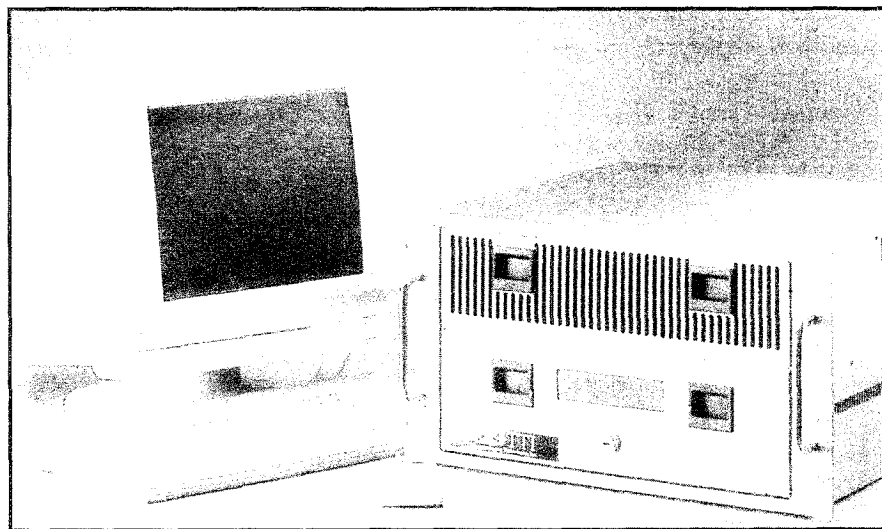
dents who do not fit into the calendar and the rules prescribed by the institution.)

- **Facilities.** In a virtual university, funds for construction, operation and maintenance of classroom buildings can be diverted to produce and maintain courseware, networks and human services. Personal counseling, tutoring, mentoring and other services are available online by telephone or via other communication technologies. Such services would be staffed by professionals and volunteers on a 24-hour basis.

- **Charter.** To encourage experimentation with new university structures, the state of California has made provision for Charter Universities that are exempted from state accreditation guidelines for a period of five years. This should be sufficient time to establish and validate the systems of recruitment, instruction, evaluation, graduation and resource management to meet the requirements of the accrediting agencies. Continuous quality improvement based on surveys

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and student feedback will ensure efficient operation with high quality courses and supporting services.

### THE ADMINISTRATIVE HUB

The hub of the university will be a powerful computer management system backed by human resource personnel. It will operate 168 hours per week to enable admission, advisement, registration, accounting, course selection, course delivery and record keeping from widely distributed sources.

Curriculum and courseware will be selected from leading institutions of higher education worldwide based on the following criteria:

- If instructor taught, the instructor must be nationally acclaimed for his/her teaching ability - curriculum design, presentation, quality of interaction, audiovisual materials, handouts, relationships with students, and assessment tools.
- If media taught, the courseware must meet University of the Future technical and pedagogical standards, which reflect those of instructor taught courses. Courseware should be validated to ensure it achieves its stated objectives with target groups similar to students of the University of the Future. Courseware not yet validated will be so labeled and may be charged at a lower rate. Courses validated by the University of the Future will be given the its Seal of Approval. Universities wishing to add this seal to promote the sale of their products will pay a charge for the right to use the seal. Courses will be modular and accurately described so that students can design custom courses to meet their specific needs. Interdisciplinary courses and programs, new academic disciplines and cutting edge technologies will be given high curriculum priority.

Deans for each discipline will explore the implications of current trends and innovations and develop a cadre of scholars with a future focus. For example, science will focus on the effects of weightlessness on human growth and development, design of closed ecosystems for space stations, new energy sources, space exploration, space manufacturing and the population of space. Art will focus on future themes and

styles, computer art, fractals, holography, etc. And communications will focus on architecture for future computers and super-computers, compression algorithms, object-oriented design and artificial intelligence.

### PROGRAM DESIGN

The University of the Future will develop a catalog of established courses, course shell structures and resources that can be used by students to design an individual program of study. Students will be encouraged to design holistic programs to prepare them for their proposed profession or career.

Students will have the option to receive special training such as:

- speed reading with increased comprehension for up to 20,000 words per minute;
- visualization and image interpretation;
- mind mapping, planning and memorization skills;
- team planning and facilitation for design, production and evaluation; and
- interpretation skills for non-verbal communication.

### PROJECTED IMPLEMENTATION SCHEDULE

- 1995 Develop business plan, seek funding, set up prototype management hub
- 1996 Implement courses in the Silicon Valley region to test prototype system
- 1997 Expand program to state of California
- 1998 Expand program nationwide
- 1999 Expand program worldwide

### ▼ ABOUT THE AUTHOR

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