

ACADEMIC SENATE  
OF  
CALIFORNIA STATE UNIVERSITY  
SACRAMENTO

Minutes

Issue #9

April 8, 1987

ROLL CALL

Present: Alexander, Anderson, Ball, Barnes, Beckwith, Bess, Curry, Farrand, Figler, Fitzwater, Gillott, Gregorich, Kaltenbach, Kellough, Kenny, Kimenyi, Knepprath (Parliamentarian), Koester, Kostyrko, Madden, Morrow, Phelps, Price, Radimsky, Rombold, Sauls, Savino, Sharp, Shattuck, Snow, Taniguchi, Torcom, Tzakiri, Winters, Yousif

Absent: Addicott, Christian, Cook, Endres, Hamilton, Harralson, Hernandez, Horrigan, Jensen, D. Lee, Maxwell, Pucci, Takeuchi

ACTION ITEMS

AS 87-19/Flr. MINUTES

The Minutes of the regular meeting of March 11, 1987, are approved.

Carried unanimously.

AS 87-20/Ex. COMMITTEE APPOINTMENTS

Committee on Committees:

Convenor:	ROBERT CURRY, Vice Chair, Academic Senate
Student Senate:	No student senators appointed for 1986-87
Social Science:	JOSEPH MORROW
Humanities/Fine Arts:	DAVID MADDEN
Sciences & Math:	SCOTT FARRAND
Education:	CHARLOTTE COOK
Business & Public Admin.:	EUGENE SAULS
Engineering:	SALAH YOUSIF
Social Work:	GILBERT HAMILTON
Health & P.E.:	JOHN MAXWELL
Nursing:	TOM PUCCI
Library:	Senator not available
Student Affairs:	HARRIET TANIGUCHI
Ethnic Studies:	ALEXANDRE KIMENYI

Financial Aids Scholarship Selection Committee: NECMI KARAGOZUGLU, At-large,  
1987

Carried unanimously.

\*AS 87-21/CC, GPPC, Ex. CURRICULUM REVIEW, DEPARTMENT OF SOCIOLOGY

The Academic Senate recommends the following for the Department of Sociology:

1. approval of the undergraduate major be deferred until October 1, 1987, pending decisions about the number of concentrations the Department can realistically provide for undergraduate majors.
2. approval of the Master's program be deferred until October 1, 1988, pending demonstration of the ability to attract enough enrollment to make the program viable and fiscally feasible in the judgment of the Dean of the School of Arts and Sciences.

[The complete Academic Program Review for the Department of Sociology is available for review in the Academic Senate office, Adm. 264.]

Carried unanimously.

AS 87-22/Ex. CONCURRENT ENROLLMENT

The CSU, Sacramento Academic Senate supports the efforts of the CSU Academic Senate (AS-1713-87/GA) to eliminate Concurrent Enrollment assessments for each campus [see Attachment A].

Carried unanimously.

\*AS 87-23/CC, FisA, Ex. PROGRAM CHANGE

The Academic Senate recommends that the Bachelor of Science Degree program in Electrical and Electronic Engineering [see Attachment B] be approved with the changes implemented in Fall, 1987.

Carried unanimously.

\*AS 87-24/CC, GPPC, FisA, Ex. CERTIFICATE PROGRAM, LANGUAGE DEVELOPMENT SPECIALIST

The Academic Senate recommends approval of the Language Development Specialist Certificate Preparation Program [see Attachment C].

Carried unanimously.

\*AS 87-25/GPPC, FisA, Ex. M.S. DEGREE IN APPLIED PHYSICS ON MASTER PLAN

The Academic Senate recommends that the Master of Science Degree program in Applied Physics be placed on the Academic Master Plan [see Attachment D].

Carried unanimously.

\*AS 87-26/Ex. ACADEMIC SENATE RETREAT

The CSU, Sacramento Academic Senate shall hold a retreat before the start of the Fall 1987 semester. One agenda item shall be the articulation of courses between CSUS and community colleges.

Carried unanimously.

\*AS 87-27/GE, Ex. GENERAL EDUCATION PROGRAM, PROCEDURES FOR REVIEW OF

The Vice President for Academic Affairs shall oversee the conduct of a General Education review, pursuant to Executive Order 338, beginning sometime during the Academic Year 1987-88. The review shall involve appropriate Senate committees as in the case of other program reviews.

Carried unanimously.

\*AS 87-28/AP, Ex., Flr. MAKE-UP EXAMINATIONS, POLICY ON

It shall be left to the discretion of the individual faculty member whether, when, and under what conditions make-up examinations shall be given.

Carried.

\*AS 87-29/Ex. MAKE-UP EXAMINATIONS, ADMINISTRATION OF

The Academic Senate requests the Administration to seek to develop means to expedite the orderly administration of make-up examinations.

Carried.

\*AS 87-30/AP, Ex. ACADEMIC CALENDARS

The Academic Senate recommends that the current academic calendar pattern continue to be used.

Carried.

AS 87-31/Ex., Flr. PROPOSED REVISION TO MASTER PLAN

Of the two proposed revisions to the Master Plan being considered by the CSU Academic Senate [see Attachment E], the CSUS Academic Senate recommends adoption of the first, which states: "The primary function of the CSU is the provision of instruction for undergraduate students, and for graduate students through authorized and supported advanced degrees. Faculty scholarship, research and creative activity which enhance instruction, or are related to areas of public interest, are authorized and supported."

Carried.

\*AS 87-32/Ex. CENTER FOR THE REASONING ARTS

The Academic Senate recommends approval of the proposal to establish a Center for the Reasoning Arts [see Attachment F].

Carried unanimously.

AS 87-33/Ex., Flr. TEMPORARY FACULTY, REPRESENTATION ON ACADEMIC SENATE

- Whereas, Temporary faculty make up 40% of the total faculty of CSU, Sacramento, and teach 30% of the University's courses, and
- Whereas, Temporary faculty share with tenured and tenure-track faculty interests and concerns about the curriculum, about personnel policies, and about University procedures and problems, and
- Whereas, The Academic Senate, which recommends policies to the President, is made up only of tenured and tenure-track faculty, and
- Whereas, Several CSU campus Senates have made provision for the inclusion of temporary faculty representatives, therefore be it
- Resolved, That the Academic Senate, CSU, Sacramento, recommend that the faculty amend the Constitution in the following manner: add four at-large members, not more than two of whom shall be from any one school, to be elected from and by those temporary faculty who are teaching six units or more during the semester in which the election is conducted, and be it further
- Resolved, That the at-large members be elected on the same schedule and through the same process as statewide academic senators, and be it further
- Resolved, That the representatives of temporary faculty shall have all the rights, privileges, and responsibilities of other elected members of the Academic Senate.

Carried unanimously.

Because of the hour, the following agenda items were postponed to the May 6 Senate meeting:

AS 87-34/GPPC, CC, Ex. CURRICULUM REVIEW, ETHNIC STUDIES CENTER

AS 87-35/GE, Ex. GENERAL EDUCATION (QUANTITATIVE REASONING)--GRADES

The meeting was adjourned at 4:10 p.m.

  
Janice McPherson, Secretary

\*President's response requested.

ACADEMIC SENATE  
of  
THE CALIFORNIA STATE UNIVERSITY

ATTACHMENT A  
Academic Senate Minutes  
April 8, 1987

AS-1713-87/GA  
January 8-9, 1987

RESOLUTION ON THE FUTURE OF CONCURRENT ENROLLMENT

- WHEREAS, The Concurrent Enrollment program offers an important service for people who are unable to meet the established deadlines of application for admission to The California State University; and
- WHEREAS, Twenty percent of Concurrent Enrollment students become regularly enrolled students; and
- WHEREAS, The Concurrent Enrollment program offers an important service to citizens who need one or two courses rather than a full program in pursuance of a degree; and
- WHEREAS, The present budgetary procedure of levying an assessment on the campus Concurrent Enrollment programs to pay a portion of concurrent enrollment money into the General Fund (\$2,000,000 in 85-86 and again in 86-87) causes Extended Education programs to use reserve funds to pay these assessments, thus endangering the future of both the Concurrent Enrollment programs and the financial stability of Extended Education programs; therefore be it
- RESOLVED: That the Academic Senate of The California State University work with the budget-making process for 1988-89 to eliminate the Concurrent Enrollment assessments for each campus; and be it further
- RESOLVED: That the Trustees, the Chancellor's staff, the Executive Council, the Academic Vice Presidents, the deans of Extended Education, and the local campus senates be asked to join the effort to preserve the Concurrent Enrollment programs by opposing the diversion of Concurrent Enrollment money to the General Fund. The Executive Committee of the Academic Senate CSU will report on the status of these efforts in January of 1988.

CALIFORNIA STATE UNIVERSITY, SACRAMENTO  
PROGRAM CHANGE PROPOSAL

Academic Unit: Electrical and Electronic Engineering Date of Submission to School Dean: February 13, 1987

Requested Effective Fall x Spring     , 1987

Type of Program Change:	Required forms attached:
<u>  X  </u> Modification in Existing Program	
<u>  X  </u> Substantive Change	<u>  X  </u> Form C
<u>    </u> Non Substantive Change	<u>    </u> no form required
<u>    </u> Deletion of Existing Program	<u>    </u> Form D
<u>    </u> Initiation (Projection) of New Program	<u>    </u> Form E
<u>    </u> Implementation of New Program	<u>    </u> Form F
<u>    </u> Addition of New Minor, Concentration, Option, Specialization, Emphasis	<u>    </u> Form G
<u>    </u> Addition of New Certificate Program	<u>    </u> Form H

Briefly describe the change requested and the justification for the change:

- A. All E&EE courses with Computer Engineering context have been changed to CpE designation.
- B. All of the remaining program changes are being made in response to our accreditation agency (ABET) requirement to include more engineering design in the core courses and to rely less on upper division electives for engineering design. The major changes include:

(continued)

Transaction:

School Review Completed (date): 2/11/87

University Review Completed (date):                     

Chancellor's Review Completed (date):                     

Approvals:

Department Chair: *James P. Amie* Date: 3/10/87

School Dean: *Ronald H. Elliott* Date: 3/11/87

Associate Vice President-Curriculum:                      Date:

Program Change Proposal (Form B)

Page 2

1. Two courses, E&EE 9 (now CpE 65) and E&EE 174 (now CpE 184) have been increased from 3 units to 4 units in order to increase design content in the core (net increase, 1 lab unit and 1 lecture unit).
2. The senior design courses E&EE 190 and 191 have been increased from 3 to 4 units in order to increase design content in the core (net increase, 1 lab unit).
3. The material from three lecture courses (E&EE 151, 152 and 188) have been combined into two lecture/lab courses, E&EE 118 and 184 (net change, decrease 3 lecture units and increase 1 lab unit).

FISCAL AFFAIRS COMMITTEE

FISCAL IMPACT EVALUATION  
PROGRAM CHANGES IN ELECTRICAL AND ELECTRONIC ENGINEERING  
March 24, 1987

The Electrical and Electronic Engineering department proposes major changes in their curriculum. The major thrust of these changes is to increase the design content in the core of the major. The specific changes proposed are clearly explained in the document prepared by the department of EEE.

The "Comparison of Old and New WTU" submitted by EEE appears, upon close examination, to be accurate. The Fiscal Affairs Committee concludes that the new program would require 15.5 wtu's more in support.

The engineering science elective that is proposed for deletion is a 3 unit elective chosen from Engr 112, Engr 132, and Engr 151, Engr 152, Engr 166, CSc 130, Phys 130, Phys 140, Phys 145, BioSc 128.1, BME 167, and Psych 115. Historical enrollments of EEE majors in these courses suggest that the 9 wtu/semester drop in demand will be spread as follows:

course	wtu/semester
Engr 112	-3
Engr 132	-2.25
CSc 130	-2.25
Phys 130	-2
<hr/>	<hr/>
Total	-9.5

Thus the Fiscal Affairs Committee anticipates an effect on units other than EEE. These effects are already being felt as the engineering science elective was replaced by an EEE elective last year.

The total additional cost of the program change mentioned above, 15.5 wtu's/ semester, would most likely be distributed as follows:

unit	change (wtu's/semester)
EEE and CPE	+25
Engr	-5.25
CSc	-2.25
Phys	-2
<hr/>	<hr/>
Total	+15.5

Thus the School of Engineering and Computer Science will experience an increase of 17.5 wtu's per semester. The Department of Physics will experience a decrease of 2 wtu's per semester.

The School of Engineering and Computer Science intends to afford this program by internal reallocation within the school. The Fiscal Affairs Committee recommends that EEE consult with the Physics Department regarding the impact of the program change on Physics 130. The Fiscal Affairs Committee appreciates the careful explanation and accurate analysis of the proposed changes prepared by the EEE department.



**LANGUAGE DEVELOPMENT SPECIALIST  
CERTIFICATE PREPARATION PROGRAM**

The Language Development Specialist Certificate Preparation Program is a program designed for teachers who wish to qualify and prepare for the State certification examination leading to a certificate of competence as a Language Development Specialist. The twenty-four unit graduate level preparation program qualifies teachers who otherwise do not have the prerequisite requirements to take the State certification examination. The completion of the program, however, does not waive the passage of the examination before certification.

Present law allows teachers who have met one of the following sets of requirements to take the State certification examination: One year of formal college level foreign language coursework and (a) two years of full-time classroom experience teaching limited English proficient students, or (b) one year of the said classroom experience and an approved ESL certificate (12 college units), or (c) completion of a Commission approved 24 unit preparation program. The proposed preparation program will qualify candidates to take the State examination under requirement "c".

Presently an approved Master of Arts in Education, English Language Development Option, has been in operation for three years. The preparation program shares an identical list of required courses and electives as the Master's Program. Preparation program students are required to take an additional 3 units from the elective list for a total of 24 units.

There are no additional fiscal resources needed to implement the preparation program. All courses in the proposed program are already existing courses in the English Department and the School of Education. There is also considerable overlap between coursework in the proposed program and the Bilingual Education graduate programs that have been in operation for over ten years.

FISCAL AFFAIRS COMMITTEE

FISCAL IMPACT EVALUATION  
LANGUAGE DEVELOPMENT SPECIALIST CERTIFICATE  
PREPARATION PROGRAM

Currently, only about ten students are participating in various stages of the Language Development Specialist Program. The only course in which enrollment is reaching the maximum is English 210E, Linguistics with emphasis on morphology and philology. A review of enrollments in this course reveals that only one student enrollment came from the Language Development Specialist Program student group. During 1985-86, the English Department offered a section of 210E each semester; previously it had been offered but once each year.

It would appear that students desiring the Language Development Specialist Program will not impact greatly on English 210E because the English Department recommends that students without a solid background in English take English 110 as a substitute for English 210E. Given present levels of enrollment, it appears that there is still room for an additional three or four students each semester in English 210E.

In addition, we have been informed that it is possible for persons to obtain certification as a Language Development Specialist without participating in the program. This alternative will tend to reduce or keep down the number of persons taking part in the academic program through the University.

In short, it appears that the short-term impact of the Language Development Specialist Program will be minimal upon required courses in the program. Fiscal impact of the program, therefore, will be slight.

The Fiscal Affairs Committee suggests that the Department of Teacher Education continue consultation with the Department of English regarding future impact of the size of this program on the English courses in the program.

Fiscal Affairs Committee, March 3, 1987.



PHYSICS-PHYSICAL SCIENCE DEPARTMENT

June 10, 1986

PROPOSAL FOR A MASTER'S DEGREE PROGRAM  
IN APPLIED PHYSICS

The Department of Physics/Physical Science and Astronomy at CSUS requests that the degree of Master of Science in Applied Physics be placed on the Master Plan of the University. This program will emphasize the experimental techniques and the theoretical methods that are useful in the solution of a wide range of research and development problems in science and technology.

Justification

Viewed from one perspective, the mission of a CSU campus is to provide a source of well-trained graduates to support and enhance the local community. Viewed in a slightly different way, this mission is to provide students the opportunity to receive training in areas in which they have an interest and can make a contribution. From either perspective, there is a need for a graduate program in applied physics.

According to the Sacramento Chamber of Commerce 1985 Business Handbook, "Sacramento is California's fastest growing regional center for advanced technology and scientific development". This growth consists of large corporations such as Hewlett-Packard, Avantek and Intel as well as a highly varied collection of smaller, more volatile, high-tech firms which even now include robotics, holography, bio-medical instrumentation, microwave components, ultrasonic imaging, computer software and hardware development, ... to name only a few that our own Physics undergraduate students have become involved in during the recent past. It is abundantly clear that the Sacramento area has already become a major center of high technology and this trend is accelerating. It is equally clear that such an explosion of technology cannot be sustained without an indigenous source of highly-trained manpower. The CSUS Applied Physics program is being designed precisely to help fill this need.

The program is also justified from the perspective of service to students. In the past, most undergraduate physics majors intended to continue their studies through the Ph.D. level, with the eventual career goal of teaching in a university and/or doing pure or applied research. Few students or universities thought of the master's degree in physics as a genuine terminal degree. This orientation has changed in the last few years as more students and employers realize that physics provides a strong background for a wide range of careers in modern society. Accordingly, we have found that many undergraduate physics majors intend to pursue such careers. At present, these students do not have locally available a master's degree program which meets their needs.

The proposed program will also be of interest to the growing number of engineering and science professionals who are already employed in a local industry or government laboratory and who wish to pursue graduate study in a program which builds on and further develops skills which are related to their occupations.

Another major benefit is the fact that certain courses which will be offered as part of the Master's Degree will also be available to our advanced undergraduate students, Sacramento area professionals and high school science teachers.

### The Program

The proposed Applied Physics program will consist of three main components, namely, the core area, the concentration area, and the thesis project. The core area will consist of extensive training in the methods of applied physics and is intended to give the student working skill in a broad range of experimental techniques useful in science and technology. The concentration area, on the other hand, will focus on an area of relevance to applied science and technology. Examples are acoustics, applied solid state physics, optics, laser physics, and medical physics. The thesis project will then blend the skills acquired from the first two and apply them to the solution of a significant problem, usually related to the concentration area. These three components will be supplemented by courses drawn from such topics as computational skills, data analysis and statistical inference, applied nuclear techniques, solar energy and alternative sources, and fluids and plasma physics. Depending on the area of concentration, students may take a part of their coursework in Engineering or Mathematics.

### Resources and Needs

The Physics Department at CSUS presently has the facilities, the equipment and the faculty to begin the proposed Applied Physics program, offering specializations in the areas of concentration named above. It should be possible to accommodate about 10 to 15 students at the start with careful laboratory scheduling so as to cope with the space shortage problem. If the program grows, as we believe is likely, we will begin to be constrained by the facilities. On the other hand, if we achieve the kind of working relationship with local industries that is expected, then a number of our students should be doing their thesis research off campus, relieving some of this pressure. There should be minimal costs for scientific equipment due specifically to the Master's Degree program since, as a matter of policy, the Department has tried to ensure that our undergraduate majors have an opportunity to learn on up-to-date, research-quality instruments so that they will be well prepared upon graduation. We are also supported by unusually well-equipped machine and electronics shop facilities.

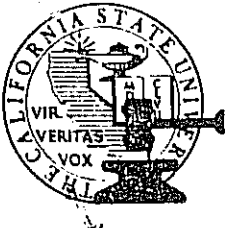
## FISCAL AFFAIRS COMMITTEE

### PRELIMINARY ANALYSIS M.S. IN APPLIED PHYSICS

The Department of Physics/Physical Science proposes for the Master Plan of the University a new program to offer an M.S. in Applied Physics. Because this program is at an early stage of planning, there is not sufficient information on which the Fiscal Affairs Committee could base a fiscal impact evaluation. The Physics Department estimates the following expenses: 1 full-time faculty position to staff new course selections, 3 wtu's per semester for a program coordinator (6 wtu's per semester in the year before implementation of the program), a half-time clerical position, a half-time technician, \$5,000 per year in O.E., \$20,000 per year for 2-6 years in equipment for a specialization in modern optics, conversion of laboratory space, conversion of a small classroom to a laboratory, and rooms for lecture sections. The department feels that the program should accommodate 10-15 students in the beginning. Greater precision in this estimate (how many new students per semester taking how many units) should come prior to implementation of the program. The Fiscal Affairs Committee makes the following suggestions:

1. The Department of Physics should give careful consideration to scheduling patterns for the courses in the program, as the more that students proceed through the courses as a group, the less the staffing costs. In a program as expensive as this proposed M.S., all creative attempts should be made to minimize the costs without compromising the integrity of the program.
2. Throughout the planning process, the Department of Physics should consult with the other departments offering courses that might be used in the program. It should also consider whether any of the prospective participants in this M.S. program would, under the current CSUS offerings, be attracted to another graduate program. That is, will the enrollments in this program be accompanied by a decline in enrollments in any other M.S. programs, such as in engineering?
3. The Department of Physics should energetically pursue support from those local industries that will benefit from this program. It will be helpful to future evaluations of fiscal impact if a quantified estimate of external support can be provided.
4. The Department of Physics should carefully survey the community in order to arrive at estimates of enrollments in this program as a future fiscal impact evaluation will be more meaningful in the presence of better data.

Fiscal Affairs Committee March 3, 1987.



ACADEMIC SENATE  
OF  
THE CALIFORNIA STATE UNIVERSITY

ATTACHMENT E  
> Academic Senate Minutes  
April 8, 1987

400 Golden Shore, Suite 134, Long Beach, California 90802-4275 • (213) 590-5578 or 5550, ATSS: 635-5578 or 5550

Office of the Chair

MEMORANDUM

DATE: February 11, 1987

TO: Chairs, Campus Senates  
FROM: *Bernard Goldstein*  
Bernard Goldstein, Chair  
Academic Senate CSU

CSUS  
Academic Senate  
RECEIVED  
2/11/87 (A)

Based upon the meeting with the Campus Senate Chairs on Tuesday, February 10th, the following revision of the paragraph on support for scholarship is proposed.

Recall that the current language in the Master Plan for the CSU is as follows:

"The California State University and Colleges shall have as its primary function the provision of undergraduate instruction and graduate instruction through the master's degree."

The Master Plan also states that:

"Faculty research is authorized to the extent that it is consistent with the primary function of the California State University and Colleges."

The proposed revision --

"The primary function of the CSU is the provision of instruction for undergraduate students, and for graduate students through authorized and supported advanced degrees. Faculty scholarship, research and creative activity which enhance instruction, or are related to areas of public interest, are authorized and supported."

Upon further reflection and discussion with several other Academic Senators, the following sentence is an alternative to the last sentence in the above quoted proposed revision:

"Faculty scholarship, research, and creative activity are integral to the instructional and public service functions of the CSU."

Please respond to the proposed revision as indicated in this memorandum (February 11th) and disregard the statement in the memorandum of February 9th no later than April 1st.

BG/he

## PROPOSAL: CENTER FOR THE REASONING ARTS

There is a growing body of research in thinking skills, but thus far it is limited two ways: it is far from complete and it is fragmented. The former is due to the relative youth of critical thinking as a subject of study and the latter to the fact that most of the research is discipline bound. A center could bring together teachers and researchers of reasoning and critical thinking from different disciplines such as Education, Communication, Language Arts, Philosophy, and Psychology. Work on common or cooperative projects in research and pedagogy in reasoning is likely to produce faster and more substantive advances in this young discipline than will working separately or within the limits of more traditional disciplines.

The State of California now requires critical thinking instruction in K-12 and the California State University has had a critical thinking requirement since 1980. Consequently, California public education now constitutes a vast laboratory for the study of the reasoning arts and their instruction. There exists an opportunity not only to conduct substantive academic research in a growing and important field, but to improve the teaching of the subject in California and other states.

Thus we propose, in accordance with the University's "Guidelines for Centers and Institutes," an independent Center for the Reasoning Arts. The Center would conduct research in creative and critical thinking, incorporating work within cognitive psychology, education, evaluation, linguistics, forensics, philosophy, formal logic, and other fields. It would investigate both the teaching and evaluation of thinking skills at all educational levels. It would also assist in training teachers at all levels. Further, it would be both resource and broadcaster, serving the State Department of Education, school districts locally and statewide, and the entire education community. Finally, it would serve the California State University's programs in general education, liberal education, teacher education, and academic improvement generally.

Activities of the Center might include:

- o **Conducting cross-disciplinary scholarly research into the nature of critical thinking (CT) and other thinking skills.**
- o **Exploring ways to incorporate more reasoning into instruction in K through college traditional subjects (history, language, science, etc.).**
- o **Developing and assessing CT tests and other evaluative procedures, including testing for CT readiness in children.**
- o **Providing planning, curriculum development, in-service training, and staff development activities for school administrators and teachers at all levels.**
- o **Collecting and making available literature, publications, tests, computer assisted programs, and other media which promote the teaching of thinking.**
- o **Evaluating the impact of the CSU critical thinking requirement.**
- o **Disseminating information about promising programs, resources, and practices.**
- o **Assessing, in cooperation with the state Department of Education, various conflicting approaches to teaching thinking.**

## Proposal: Center for the Reasoning Arts - Page Two

A primary function of the Center would be to lessen compartmentalization. Thus far, K-12ers and university types, cognitive psychologists and philosophers, methodologists in the sciences and historiographers, have barely spoken with one another. This is not for lack of desire or good will so much as it is for lack of any forum which is not in one or the other's home turf.

The Center would need a Director with experience in educational research, logic, theory of argumentation, and developmental psychology. Presumably, this would be someone of advanced academic rank whose position would be partially in the School of Education or in one of the Arts and Sciences departments. For academic year 1986-87, Professors Arthur Costa (Education) and Perry Weddle (Philosophy) will serve as co-directors.

Remaining personnel would include research, administrative, and clerical assistants, as well as people conducting projects under the Center aegis.

The Center would need a Board of Governance, to be drawn from the School of Education, the School of Arts and Sciences, the CSUS Administration, the State Department of Education, local school districts, and the community.

It would need an office on campus and a convenient service center, ideally off campus. The former could begin with one or two involved faculty member's offices/phone numbers and evolve as new programs are mounted. The service center is crucial to fulfilling the goal of providing services to state and local school districts; we must consider proximity to clients, space for parking, and an office with adequate space and potential for communicating with a wide range of educational institutions and agencies. It is possible that the Sacramento County School District can provide us with such a location as well as some secretarial support.

Connection with a wide range of educational institutions and agencies will be important. The most efficient communication system would be a computer network, and the one already linked to a number of educational facilities statewide (and nationwide) is Plato. The philosophy department's Critical Thinking Project (which would come under the Center) is presently being connected with the Plato Project through our campus computer center; extending this connection to the service center would be a simple and inexpensive task.

The Center would be a money locating agency. A maxi-grant is possible, as is funding from the proceeds of California's lottery. Private money may also be available. Federal funds would also be sought--Title IV, NEH, and Chapter 2. A Director of sufficient reputation would presumably bring with her/him the potential for plenty of outside funding from the conventional educational research sources. Finally, the Institute should very soon become mostly self-supporting through its teacher training programs, publications and other materials, outside funding of individual projects, etc.



## APPENDIX: RATIONALE

In 1985, the Association of American Colleges published *Integrity Across the Curriculum: A Report to the Academic Community*, in which critical analysis and abstract logical thinking were named first in priority for a proposed minimum required curriculum.

In 1982, The Education Commission of the United States cited thinking as the "basics" of tomorrow. It lists: evaluation and analysis skills, critical thinking, problem solving strategies, organization and reference skills, synthesis, application, creativity, decision-making given incomplete information, and communication skills through a variety of modes.

The results of the National Assessment of Educational Progress showed that over the past ten years students have been faltering in their test scores of higher level thinking.

The State of California has begun including critical thinking as part of its Statewide Assessment Program.

In 1980, The California State University made critical thinking a general education requirement for undergraduates.

Numerous programs in cognitive education have emerged in the past five years and are receiving national and international attention: Matthew Lipman's *Philosophy for Children*, Reuven Feuerstein's *Instrumental Enrichment*, Arthur Whimbey's *Strategic Reasoning*, Edward DeBono's *Lateral Thinking*, and J.P. Guilford's *Structure of the Intellect*.

Other nations--namely Venezuela, China, Israel, and Chile--have identified teaching thinking as a primary national goal. Luis Alberto Machado, Minister of Intellectual Development in Venezuela, stated, "The level of development of a country is determined by the level of intellectual development of its people."