

Volume 11

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The Alberta Teachers' Association

**Mathematics** Council

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ETTE

# From the Editor

Mathematics is more than learning the basic facts. For many parents and, unfortunately, some teachers, mathematics is the memorization of basic facts and some formulas. The following article by Robert M. Nielsen outlines the need for learning more than these basics. He discusses what he thinks is wrong with this type of teaching and what the alternatives should be.

## Math Backwards

by Robert M. Nielsen

Our 12-year-old grandson, Alan, visited us, giving us a rare opportunity to help with his pre-algebra homework. He attends Grade 7 in an upper middle-class suburban school district on the [American] West Coast. He had with him a half dozen worksheets, problem sets, that could have been copied out of any of the textbooks you, I or even our grandparents might have used when we took the course. The sheets had a 1981 copyright, but they are ageless. With all the recent attention given to math and science reform in the schools, I couldn't help being disappointed with how little effect any of the reform efforts has had on my grandson's school or on his parents. The effects on Alan were predictable.

Not surprisingly, Alan was disinterested in the subject generally, and his whole focus was on getting through the chore as quickly as possible. He wasn't the least bit interested in explanations or examples to help him understand why he had made an error. He wanted us to show him how—to give him a routine or trick that he could hold in his memory just long enough to get through the problem set. He is performing B-grade work in the course, and he is doing exactly what his teacher expects of him—no more, and a little less if he can get away with it. It is sad to see someone so young really disliking math, especially when it is tragically unnecessary.

We gave him a spare calculator after he told us they were allowed to use them in school but that he didn't have one of his own. When his mother heard about the gift, she was quick to tell us, "I'm against calculators. I won't let him use one in my house. He's never going to get the basics down if he uses one of those things." Reading my look of disappointment, she relented slightly, "Maybe I'll let him use it to check his answers."

It's enough to make one weep. We had a short talk about the school's math program and how much stress was placed on "the basics." There is a lot more to math in the closing years of the 20th century than the times tables and basic number facts.

I'm neither against computation and practice nor against children learning the concepts of arithmetic and algebra. What I am opposed to is the continuation of math instruction that virtually guarantees that less than half our children will learn anything but a small fraction of what they should know and that teaches the vast majority to fear and hate the subject. Life will be difficult enough in the next century without being burdened with these troublesome legacies of an outdated and deficient math program.

My son and his caring, well-intentioned wife are unaware of their contribution to my grandson's miseducation. They cling to a blind hope that if Alan gets the "number facts" down, as did his parents and their parents before them, he will be well armed to go forth into the world, safely protected from the evils of intellectual laziness. It is a lovely myth. So is the Sword in the Stone. It is sleepwalking backward toward the next century in the belief that what worked in the past is a safe passport to the future.

The trouble is that everyone involved believes deeply that he or she is doing what is best for the children. Carnegie Foundation president David Hamburg recently observed that the perfect can be the enemy of the good. This is perhaps no truer than in the world of school math. It is critically important that today's children be well grounded in a broad array of math, science and technological concepts and skills. Their world will be even more complex than ours. That they approach perfection in the ritualized performance of rapid paper-and-pencil arithmetic and algebraic computations is less important than the solid digesting of the concepts behind those calculations.

Part of the problem is the failure of educators to articulate clearly the wrongness of memorization as teaching. To *know* is not the same thing as to have *memorized*. Knowing must carry with it *understanding*—the ability to use the basic facts. Even those few children who "learn" their math by memorization have difficulty using it. By contrast, not only do children who learn their math by using it (not a new or radical idea) have less difficulty doing so but also more of them learn it without hating it. In learning math by doing math (the teaching crux of the National Council of Teachers of Mathematics' *Curriculum and Evaluation Standards for School Mathematics*), children learn both the basic concepts of math and the skills that are required in their applications.

Most parents and guardians want their children to do well in math, and they cling to "the basics" because they are afraid their children will be handicapped if they don't get them. Parents are both right and wrong in this assumption. My son and his wife are right in believing that if they can get Alan to work hard enough, then he will be able to pass the tests that will ultimately decide his college options. They do not understand that the present approach is not adequately serving their son's future needs.

There are hard lessons here for those who would make major changes in school math. At a minimum, parents and guardians must be assured that their children will do better on the tests—new or old—if the content changes in ways that are compatible with the NCTM standards. There are schools where this has been clearly demonstrated. Some of us know this; Alan's parents do not. That places the burden on us, not them. My wife and I are going to try some telephone tutoring this term and hope for a little more cooperation from Alan and his parents. Alan can do it, and he will soon know that he can.

-Art Jorgensen

Reminder: Opinions expressed herein are not necessarily those of MCATA or the ATA.

## From the President's Pen

I am pleased to welcome to the executive Dr. Mike Stone from the University of Calgary as the mathematics representative and Dr. Dale Burnett from the University of Lethbridge as the faculty of education representative. The executive will benefit greatly from the expertise of these two gentlemen.

The executive has just completed a successful "Thinkers" weekend in Red Deer. This is the one time in the year that the executive has for lengthy discussion and to plan MCATA activities for the next five years. Sites for the annual conference have been set through to 1998. As well, much discussion centred on the inservice summer programs being organized at the universities of Alberta, Calgary and Lethbridge. Watch for topics, times and locations to be advertised in this newsletter.

Our council publications continue to be of very high quality. Thanks go to all contributors and to our publication editors for their continued hard work. Topics to be covered in future publications include data management, motivational strategies and methodologies, introductory and programmable calculators, and developing number sense. Please continue to assist our editors by forwarding articles for publication.

The MCATA executive has formally endorsed the NCTM standards. I encourage every member to reread the two NCTM documents *Curriculum and Evaluation Standards for School Mathematics* and *Professional Standards for Teaching Mathematics*. These documents, as well as other support materials, are available from Dick Kopan, our NCTM representative. An order form to purchase NCTM materials will be included in the next issue of this newsletter.

In this newsletter is the nomination form for the positions of president, two vice-presidents, secretary and treasurer. Elections for these five positions would be a positive result of the executive's two years' work restructuring to prepare the Council for the challenges of mathematics education in the next decade. Become an active participant in your council. Run for office. Host an inservice session in your area; we will help supply the speakers. Encourage your colleagues to join the Council.

-Bob Hart

## Notice of Motion



Because of rising costs of publications, mailing and carrying out the business of MCATA, a motion will be made at the annual general meeting, October 29–30, 1993, to increase all membership fees by \$5. If the motion passes, the new fees will take effect January 1, 1994.

Fees	Present	Proposed
Regular	\$25.00	\$30.00
Affiliate	30.00	35.00
Subscription	35.00	40.00
Student	5.00	10.00

# Federal Science Minister Launches Teacher's Awards with Boost from Canada's Latest Astronaut

On January 22, 1993, the Honourable Tom Hockin, Minister for Science, announced a new awards program for excellence in science, technology and mathematics teaching. Canadian astronaut Steve MacLean helped launch the program designed to honor some of Canada's most outstanding elementary and secondary school teachers.

"I can't think of a group more important to the future of this country than teachers," said Dr. Hockin. "What they give our children is not only knowledge but also a desire to learn and a commitment to go on learning."

The Prime Minister's Awards for Teaching Excellence in Science, Technology and Mathematics program responds to recommendations from the National Advisory Board on Science and Technology and the Steering Group on Prosperity, among others. The program has received support from provincial and territorial governments, as well as key private sector groups. In announcing the program, Dr. Hockin invited companies and other organizations interested in supporting science, technology and mathematics education to become involved.

The program will honor up to 375 teachers and other educators who have had a major, proven impact on student performance and interest in science, technology and mathematics. Awards totalling \$585,000 will be offered each year at the national, provincial/territorial and local levels. Winners will receive certificates of excellence and cash awards worth \$7,000 at the national level, \$3,000 at the provincial/territorial level and \$1,000 at the local level. Awards will be shared by winning educators and their schools, with two thirds allocated to the educator for professional and personal use and one third allocated to the school.

"Strong skills in science, mathematics and technology are essential in today's society," said Dr. Hockin. "As we approach the 21st century, they will become critical. To compete internationally, Canada must have trained scientists, engineers and technologists. A good teacher can open doors for young people in these key areas and set them on the road to exciting and important careers."

The awards are open to all elementary and secondary school teachers who have taught full time for at least three years. Nominations can be made by anyone with direct knowledge of the educator's contribution to science, technology or mathematics teaching, including parents, students, principals, colleagues and/or the nominee. Winners will be selected by committees composed of representatives from a broad range of interests, including teachers' associations; parent-teacher groups; business; labor;

postsecondary science, technology or mathematics faculties; and education officials.

The program is administered on behalf of Industry, Science and Technology Canada by the Canadian Centre for Creative Technology. The nomination deadline is April 30, 1993. For award guidelines and nomination forms, contact The Prime Minister's Awards for Teaching Excellence in Science, Technology and Mathematics, % Canadian Centre for Creative Technology, 206, 20641 Logan Avenue, Langley, BC V3A 7R3; phone (604) 888-3030, or call the Science and Technology Hotline at 1-800-465-7766.



# **Mathematics Council Conference 1993**

**REFLECTION:** Congruent Beliefs & Practice

The Palliser Hotel, Calgary, Alberta October 29–30, 1993



Plan now to attend this exciting gathering of mathematics educators. The conference theme is "Reflection: Congruent Beliefs and Practice." In mathematics education, we are not just looking at the strategies we use but also reflecting on why those strategies are useful. The NCTM professional standards document examines mathematics teaching practice.

The organizing committees are putting together an outstanding program, as well as social events, exhibits and displays. The program will feature two ideasharing sessions similar to those at the Math Fare in Medicine Hat. On Friday afternoon, junior and senior high school teachers will share their teaching ideas in at least 60 half-hour presentations. Elementary teachers will have the same opportunity on Saturday morning. Many other sessions and workshops will be offered throughout the two-day conference. Feature speakers are Cathy Seeley of Austin, Texas, the closing speaker at the NCTM annual meeting in Seattle next month, and Don Fraser of the University of Toronto, the banquet speaker in Seattle.

The social committee is working to enhance the conference by keeping the Friday evening event affordable and enjoyable so everyone will want to join in.

Many publishers will be part of the display area—it is their chance to highlight their mathematics materials to a focused group of educators. As well, an area will be set aside for the display and sale of NCTM and MCATA materials. In the Browse and Reflect area, teachers will submit teaching ideas and student work.

If you have student work or teaching ideas to display or present, particularly in the half-hour sessions, contact Bob Michie at 294-6309, Bob Midyette at 249-3131 or Barb Morrison at 298-1396 in Calgary.

The conference costs \$85 (plus GST) for MCATA members. Attend this affordable conference October 29–30 in Calgary; professionally, you cannot afford to miss it.

## **Conference Calendar**

March 31–April 3 May 6–7 May 6–8 May 13–15 October 14–16 October 15 October 20–21, 1994 Spring 1996 Seattle, Washington New Brunswick Winnipeg, Manitoba Windsor, Ontario Saskatoon, Saskatchewan Delta, British Columbia Edmonton, Alberta Vancouver, British Columbia NCTM Annual NBTA Annual NCTM Regional OAME Annual SMTS Annual BCAMT Annual NCTM Regional NCTM Regional

## Summer Institute for Secondary Science and Mathematics

Have you ever been asked "When am I ever going to use this?" in your classes? For August 16–20, 1993, the Centre for Mathematics, Science and Technology Education (CMASTE) at the University of Alberta; the Mathematics and Science Councils of the ATA; and Alberta Education are organizing a summer institute for secondary science and mathematics teachers. The institute will focus on developing data management skills through the integration of the mathematics and science curricula.

Participants will be able to explore opportunities for integration of data management skills across the two programs. Math teachers are more effective when their students have "real data" to work with, while science teachers become more effective when they "speak the same language" as math teachers. This institute will focus on strong student data management skill development and transfer through promotion of parallel teaching strategies in both programs. The new STS/skills-based science programs involve close consideration of cause-effect relationships and risk-benefit analyses with a focus on data collection, organization, analysis, interpretation and evaluation. These programs provide a perfect context for practising the data management skills taught in mathematics. In this institute, data management will be covered in a practical and real-life manner by practicing classroom teachers, scientists and mathematicians.

The organizing committee includes Florence Glanfield, Raja Panwar, Bev Romanyshyn, Hugh Sanders and Morris Treasure from Alberta Education, Oliver Lantz from the ATA Science Council, Wendy Richards from MCATA and Al Olson from CMASTE.

Plan to attend the institute. Costs are still to be finalized, so watch for further details in future issues. For more information, contact Al Olson in Edmonton at 492-0195.

## NCTM News

### Special Deal for Affiliated Groups (AGs)

On the recommendation of the AGs' Regional Service Committee, NCTM's board of directors passed the following motion at its September 1992 meeting: "That affiliated groups be granted a rebate of \$5 for each new NCTM individual membership submitted between 1 January through 31 December 1993."

To qualify for the rebate, the new NCTM membership(s) must be submitted by an AG's treasurer. Total rebates due any AG under this "special deal" will be generated through current procedures used when AGs submit NCTM individual members' dues.

## **Publications and Special Member Products**

A middle school journal, *Mathematics Teaching in the Middle School*, will be launched in April 1994. As of September 1993, *Arithmetic Teacher* will be titled *Teaching Children Mathematics*. No change will be made for *Mathematics Teacher*. The title change is being made to reflect more accurately the journals' contents.

Because of information gained from the MATT E. MATICS column, a number of AGs are using materials sales as a service to members and as a means of raising funds. Dick Kopan has a number of NCTM publications and products on hand. Watch the next issue of this newsletter for a complete list.

## **Mathematics Resource Fairs**

## Calgary

The second annual mathematics resource fair was an outstanding success! Held at Viscount Bennett Centre on January 19–20, the fair attracted approximately 350 teachers and administrators. Attendees were extremely positive and appreciated the unique opportunity to discuss basic and supplemental resources, manipulatives and software directly with company representatives.

The Calgary winners of the Lucky Draw contest were Joan MacKenzie, Rideau Park School; Brenda Fellows, James Short Memorial Elementary School; Marian Hilton, Greenview School; Maureen Ward, Grant MacEwan Community College; and Elaine Landry Daigle, St. Luke Bilingual Elementary School.

Thanks go to Addison-Wesley, Exclusive and Spectrum for their support of the Lucky Draw.

#### Edmonton

On February 2–3, a resource fair was held at Barnett House which attracted 100 teachers and administrators. This was an encouraging start to what I hope will become an annual tradition for the Edmonton area. Special thanks go to Florence Glanfield and Katie Pallos-Haden for coordinating the event.

The Edmonton Lucky Draw winners were Nancy Killips, Belvedere Elementary School; Carol Klass, Louis St. Laurent School; Wayne Krupa, Namao School, Namao; and Bill Bonner, Richard Fowler Elementary School, St. Albert.

Thanks go to Addison-Wesley, Exclusive, Spectrum and Wiley for their support of the Lucky Draw contest.

-Myra C. Hood

## Mathematics 30 Diploma Exam Development Process

- 1. Items are developed by classroom teachers in item-writing committees.
- 2. Items are edited and included in field tests. Field tests are written by students every January and June.
- 3. During the field test, classroom teachers are asked to make comments regarding the wording, the curriculum fit and the scoring of questions.
- 4. During diploma examination marking, markers mark the written-response portion of the field tests and are asked to make comments regarding the scoring and wording of questions.
- 5. These comments and suggestions for changes in wording are kept with the item so that they may be used when deciding if the item should be included on an examination. In addition, a detailed item analysis is done of each field-tested item. This item analysis reports the difficulty of the item and its point biserial.

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- 6. Building a diploma examination begins with establishing a blueprint. This is done by the examination manager and approved within the department.
- 7. A committee of teachers works with the examination manager in deciding which items should be included in the examination. This process usually takes two to three days.
- 8. The examination manager is then responsible for presenting the exam at review meetings. The first one is an interbranch meeting at which Alberta Education mathematics consultants review the exam. Comments and suggestions from this meeting are incorporated into the exam.
- 9. After the first review is complete, editors review wording changes and format suggestions.
- 10. The second review meeting is that of the Examination Review Committee. This committee consists of two members of the ATA, one member from the Universities Coordinating Council, one member from CASS, one member from Colleges and one member from the Curriculum Branch. This committee is the final official review in that it must deem if the items are appropriate for the curriculum, if the items are correct mathematics and if the items reflect what students should be able to do in Mathematics 30.
- 11. After the second review is complete, editors examine the wording changes and format suggestions again.
- 12. Translation of the document into French is arranged, and a review of the translation is completed.
- 13. At least two additional teachers review the English version of the examination at this point. Teachers are asked to do the examination as a student would do it and to discuss the amount of time it would take a student.
- 14. The exam is printed.

## **Outstanding Mathematics Educator Award Criteria**

The following information is taken from Appendix A of the MCATA *Policy and Procedures Handbook*:

- The award is presented in recognition of outstanding contributions in the field of mathematics education.
- Nominations shall be judged by a selection committee composed of the table officers of MCATA and chaired by the past president.
- All nominees must be MCATA members.
- The nomination form shall be that approved by the executive committee.
- The award recipient shall be granted Life Membership.

Outstanding Mathematics Educator Award Nomination Form						
Nominee's Name Phone						
Home Address						
School Address						
Present Position						
Provide a paragraph outlining why the candidate should be considered for the award.						
· · · · ·						
Nominated by Phone						
Address						
Date						
This award will be presented at the MCATA Annual Conference in Calgary, October 29-30, 1993.						
Nomination deadline is September 15, 1993. Mail form to						

Marie Hauk Chairperson, Award Selection Committee 315 Dechene Road Edmonton, Alberta T6M 1W3

# MCATA Executive 1992–93

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# **MCATA Elections**

Nominations for the following offices for the 1993-94 school year are now being accepted:

President Vice-President (2 positions) Secretary Treasurer

To nominate a candidate, complete the form below, and mail it to Marie Hauk, 315 Dechene Road, Edmonton, Alberta T6M 1W3. Nomination deadline is April 20, 1993.

If an election is necessary, it will be conducted by mail. Ballots will be sent to all members on or about May 20, 1993.

Ensure an active council by nominating people who will take an active part in making the Mathematics Council benefit all mathematics teachers.

We, the undersigned members of the Mo	CATA, nominate	
		(name)
of		-
	(address)	
as a candidate for the office of		in the MCATA for the year 1993–94.
Signatures and addresses of two nomina	tors:	
Name		
Name		
Include a brief resume of the nominee's	qualifications for the p	position on the reverse side of this sheet.

I accept this nomination \_

(signature of nominee)

The Mathe	<ul> <li>Publications</li> <li>MCATA Newsletter—news, articles and special features published several times a year.</li> <li>MCATA Journal, <i>delta-K</i>—published three times a year.</li> <li>MCATA Journal, <i>delta-K</i>—published three times a year.</li> <li>MCATA Journal, <i>delta-K</i>—published three times a year.</li> </ul>		Promotes inservice education for improving math- ematics throughout the province.	<ul> <li>Provides resource personnel and helps with program planning in cooperation with convention committees, regionals and other interested groups.</li> </ul>	Membership	<ul> <li>REGULAR: Members of the ATA as specified in ATA bylaws. All such members are entitled to f privileges of council membership including the righ to vote and to hold office.</li> </ul>	<ul> <li>STUDENT: Student members of the ATA may join this council and are entitled to all benefits and serv- ices of council membership except the right to hold office.</li> </ul>	<ul> <li>AFFILIATE: Persons who are not ATA members as specified in ATA bylaws. Such members receive all benefits and services of council membership except the rights to vote and to hold office.</li> </ul>	<ul> <li>SUBSCRIPTION: Institution and businesses are eligible for subscription membership. Such members may receive all the benefits and services of council membership except the rights to vote and to hold office.</li> </ul>	
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Mail membership application to:



MATHEMATICS COUNCIL The Alberta Teachers' Association Barnett House 11010 142 Street Edmonton, Alberta T5N 2R1



# Memorandum

The Alberta Teachers' Association

Date 1993 02 03

To Specialist Council Secretaries

From G R Thomas, Executive Assistant, Professional Development

Re Curriculum Name Bank

The Department of Education Curriculum and Student Evaluation Branches request the Association to appoint Association members to various curriculum and student evaluation committees from time to time. Association professional development staff maintain a Curriculum Name Bank which is used as a source of names for these appointments.

It is important that we continually recruit and update the names on file. I am interested in receiving your nominations of teachers who would be appropriate Association representatives for curriculum and student evaluation work. I would also ask that you consider attaching the name bank application form to a specialist council newsletter.

The minimum criteria for nomination to curriculum and student evaluation committees are a permanent professional certificate and membership in the related specialist council.

Nominees meeting the minimum criteria are asked to complete the name bank application form (enclosed). The form may be copied for further distribution or additional copies obtained from Marilyn Terlaan at Barnett House.

In 1992/93, curriculum work is likely in the following programs or courses: career and technology studies, secondary mathematics and secondary social studies; senior high biology, chemistry, physics, science and English language arts; elementary mathematics, science and English language learning. Student Evaluation work will continue in the following subjects: Biology 30, Chemistry 30, Physics 30 and Mathematics 30. In addition, appointments will be made to the program coordinating committees (elementary, junior high and senior high).

Completed application forms may be directed to Marilyn Terlaan at Barnett House. Nominations are submitted to Provincial Executive Council for approval to be included in the Curriculum Name Bank.

Thank you for your assistance.

GRT/jml Attachment cc Specialist Council Presidents PEC Liaison Staff Advisors

11010 142 Street, Edmonton, Alberta T5N 2R1 453-2411 in Edmonton, 263-4774 from Calgary, 1-800-232-7208 from elsewhere in Alberta Fax 455-6481



# The Alberta Teachers' Association

# CURRICULUM AND STUDENT EVALUATION NAME BANK Application Form

### PERSONAL

Family name	e and initials			
Mailing address				Postal code
Current school		School telephone	Resi	dence telephone
Current school district/division/county	ATA	local and number		
Current designation				
Subjects and grade levels now being taught				

## TEACHER EDUCATION/EXPERIENCE

Degrees and majors/minors			Teacher certificate r	number			
Teaching experience (state outside dates and years of experience)							
In Alberta	ada	Total years					
If service not continuous, please comment	· ·						

### CURRICULUM ACTIVITY/INTEREST

Committee service in which interested		Curriculum		Student	evaluation	(a)
ATA specialist council memberships curre	ently	held				
Department of Education, school system of	or ATA	curriculum/stu	dent eva	aluation c	ommittee memberships	s (give name and approximate date)
						а. -
Additional relevant ATA provincial or loca	al pos	itions held (pas	st and p	present)(g	ive name and approxi	mate dates)
O biest and a standard and					1	I
Subject areas in order of preference					Level (ECS, EI,JH, SH)	Language of instruction (French, English, other)
1						
2						
3.						

Date

Signature

Mail this form to— The Alberta Teachers' Association, Attention Professional Development, 11010 142 Street, Edmonton, Alberta T5N 2R1 
 For office use
 PEC approval

 Source
 Public
 Separate

 Committee
 Selected
 Nominated
 Renewal Date

\*\* Interesting and Usefu. Jourses \*\* A Month in Paradise \*\* Mm/Board for \$32 a Day \*\*

# Chaminade University of Honolulu Summer Education Institute '93 Two Week and Four Sessions in July \*\* Teacher Session

## A Special Invitation at the

## "Crossroads of the Pacific"

We hope you will join us for the Summer Institute at Chaminade University. The Institute includes sessions for undergraduates, teachers, and educational leaders. Enjoy quality coursework offered in a true island paradise. You will study multicultural issues while living in a social environment rich in diversity. Courses will be based upon practical applications of the most recent research on effective schools.

In addition to coursework, you'll have an opportunity to meet students from many other places. The Institute will also sponsor special cultural events, social occasions and a series of Friday experiences intended to produce a value-added total program.

And, of course, the unique environment of the Hawaiian Islands will be available to you. The fully accredited University is located in Honolulu, and provides easy access to the many attractions of the city.

#### Housing

Housing will be available on campus at one of four dormitories. Conveniently located near classrooms, the dorms include a variety of single, double and apartment like accommodations. Each building includes pleasant recreation rooms, lounge areas, and some kitchen facilities.

#### Schedule

The Summer Education Institute intends to offer the following courses:

## Teacher Session (5 July to 30 July)

Multicultural Education (5 July to 16 July) Critical and Creative Thinking in Curriculum (19 July to 30 July)

> Cooperative Learning (19 July to 30 July) Costs

#### Tuition:

- \$300 per semester credit
- \$1,800 for 6 graduate semester credits
- \$900 for 3 graduate semester credits

## Room and Board:

- \$950 room and board (one month)
- \$750 room only option (graduates -- one month)
- Two week sessions -- 50%

#### Pavment:

- \$250 at time of application
- \$500 -- by June 1
- Remaining balance -- at registration
- Travel:
  - Group travel can be arranged.

#### **Program Description**

The Institute sessions are designed to extend over one month, with students enrolling for two three semester credit courses. Graduate students may enrol for one course covering two weeks. Classes will be held in the mornings, Monday through Thursday. Afternoons are free for study, reflection, and enjoyment.

Friday will be reserved for special optional opportunities including visits to cultural attractions such as the Bishop Museum, Polynesian Cultural Center, Arizona Memorial, and Waimea Park. Additional fees would apply.

#### **Teacher Session**

This session is intended for practicing classroom teachers. Students will take Multicultural Education and choose between Cooperative Learning and Critical/Creative Thinking in Curriculum.

#### Multicultural Education

A course that provides knowledge of the cultural heritage of the diverse ethnic groups of Hawaii. Students will become sensitive to the unique needs of students with bilingual, bicultural backgrounds. They will also examine critical issues related to multicultural education in schools.

#### Cooperative Learning

This course is designed for teachers who have had a basic introduction to cooperative learning strategies and who would like to increase their knowledge of group objectives, grouping techniques, and management strategies. Teachers will evaluate their use of cooperative learning and learn how to diagnose its effects on student interaction. Specific lesson strategies and cooperative skills will be presented.

#### Critical and Creative Thinking in Curriculum

This course is intended to provide academic background and teaching strategies which will promote critical and creative thinking in the classroom. The course is designed as a practical introduction into strategies which develop thinking skills. Examples from social studies, language arts, and science are included. Emphasis is given on how to integrate thinking skill development into the existing classroom curriculum.

#### Admission to the Summer Education Institute

Return completed application for the Institute and a \$250 reservation fee to:

Director, Summer Education Institute Chaminade University 3140 Waialae Avenue Honolulu, Hawaii 96816-1578 CALL: (800) 677-0676

				sity of Honolulu e Application		
Name		1999 Mar 2000 - 1999 - 1999 - 1999		SSN#		
Address				Telephone		
City			State/Prov	Zip	Today's Date:	
Session Choice: Undergraduate	_ Teacher	Leadership		VISA/MC Card #: Expiration Date: Authorized Signature:		Amount \$250
Dates Attending: From						
1st Course Choice:			2nd	d Course Choice:		
College: Now Attending		a an watana an a sa		or) Last Attended		

For more information, contact Ray Vermunt in Calgary at 278-8100.